APPLICO LTD

SERVICE AGENT TRAINING

2013

VIKING Baumatic smeg Classique HomeKing

TRAINING SEMINAR

Contents

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4. OVENS
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NEW PRODUCTS

2013

VIKING Baumatic smeg Classique HomeKing

NEW PRODUCTS

Dishwashers

DWA214 / 315 – Current model updates

DWIFAB – Retro style BLVO replacement

Ovens

SF, SFA & SFPA - Current model updates

DOA330 & SOA330 – New 70cm single & double wall ovens

Cooker

TRA4110 – 110cm four door gas/electric

NEW PRODUCTS

Ovens

BS, BSO, BSP & BOR – New model 60cm

Refrigeration

BRCIF7030 – New model bottom mount Fridge Freezer, 190lt/56lt

NEW PRODUCTS

Ovens

CLO, CLDO, CLOS – Updated 60cm single and double ovens

Waste disposers

CLWD12 – Replacement for model 400 waste disposer, ½ Horsepower DC motor with optional air switch

NEW PRODUCTS

Waste disposers

GAWD12 & GAWD34 – Replacements for the 400 (GAWD12) and the 600 (GAWD34) waste disposers both supplied with air switch. The GAWD12 is a ½ horsepower DC motor unit. The GAWD34 is a ¾ horsepower AC induction motor unit.

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INDUCTION

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INDUCTION

General Principles

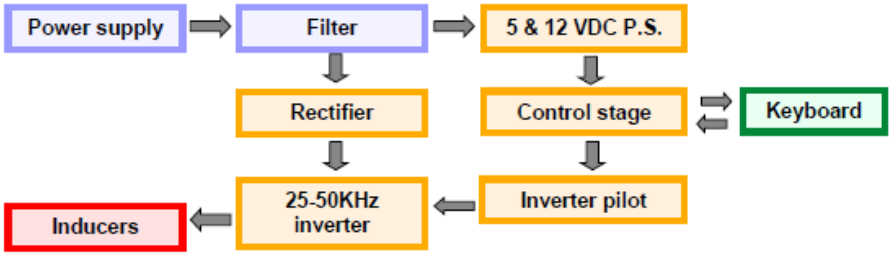
What follows are excerpts from service manuals and presentations supplied by Brandt and Smeg. Brandt is a major supplier to various manufacturers who re-brand the units for their market. Their technologies include IX1 to IX7 and the IX4000 series.

Other technology types are EGO Basic, EGO G3 and EGO G4. Regardless of the technology used, the general operation and underlying principles remain the same.

The Induction Hob working principle

7 - OPERATING STEPS

7.1. - Block diagram



7.2. - Keyboard

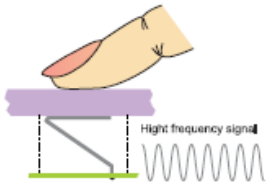
There are two families of keyboards.

Microswitch keyboards can be entirely tilting or fixed protected by tilting covers. In both cases, a 'Keyboard operating' information is recorded either by a switch (tilting keyboard), or by the action of a magnet (tilting cover) on an I.L.S.

7.2.1. - Keyboards with capacitive keys

These keyboards provide a working plane without air inlet (and thus grease inlet).

The key activation is validated when the user's finger disturbs the high-frequency signal applied to a blade. For a good operation, each blade should be perfectly in contact under the glass ceramic.



7.3. - Filtering

By design, the appliance can generate significant high-frequency interference. In order to guarantee a minimum interference level, an important filtering device is used. It enables induction hobs to be environment-friendly appliances, whose interference level is smaller than that of a television set.

The 'filtering' stage fulfils several missions:

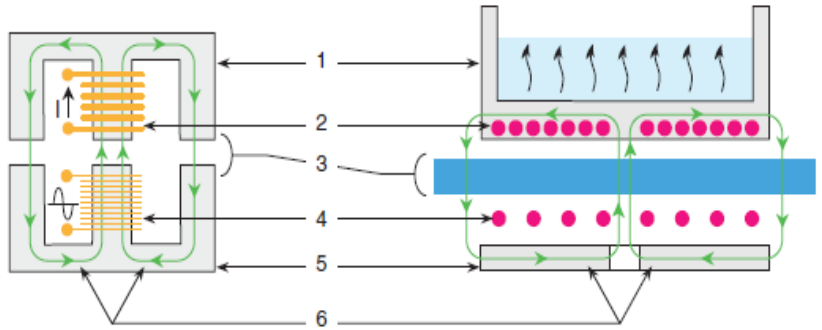
- It protects from operating overcurrents
- It eliminates incoming and outgoing interference
- It eliminates overvoltages (voltage peaks)

2 - THE OPERATING PRINCIPLE

2.1. - Analogy with the transformer

An induction hob operates thanks to the electromagnetic properties of most containers used on traditional hobs.

As a first approximation, you can compare this hob with a transformer of which the secondary winding would have been shorted. A significant internal current arises therein and causes quick heating.



TRANSFORMER		INDUCTION HOB
Magnetic conductor	1	Saucepan
Secondary winding shorted	2	Saucepan
Gap	3	Glass-ceramic plate
Primary winding	4	Inductor
Magnetic conductor	5	Ferrite
Magnetic field	6	Magnetic field

The saucepan can be compared with a shorted set of concentric whose internal resistance is not zero.

From the function keys, you control the electrical power supply to the transformer primary winding that generates a magnetic field. This field induces currents at the bottom of the container placed on the hob. These induced currents heat immediately the container, which transmits the produced heat to the food contained inside. Cooking is performed practically without any loss of energy. The appliance heating power is pushed to its maximum.

2.2. - Skin effect

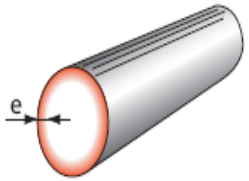
An induced current in a metallic mass will only cause significant heating if it flows through a significant resistor ($P=RI^2$). Now, a ferrite saucepan has only low resistivity. This is where a second natural phenomenon occurs, which is called 'Skin effect'.

2.2.1. - Definition

The propagation of the high-frequency current is not performed in the same way as a direct current. Contrary to direct current, where current flows with consistency in a conductor, in HF its density varies and decreases exponentially as you move away from the conductor surface.

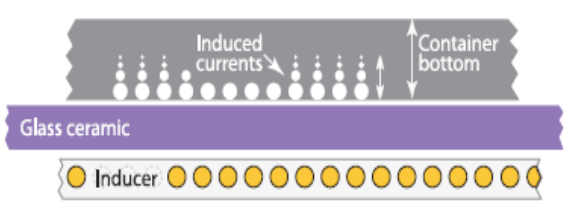
➢ **Example on copper wire supplied with high frequency**

The current flows predominantly in wire periphery 'e'. The decrease in the effective cross-sectional area of the conductor causes an increase in its resistance.



2.2.2. - Application

At a 20KHz frequency, and for a steel saucepan (magnetic ferritic material), the thickness of the saucepan in which the induced currents flow is approximately 35 µm. This allows generating a current in only a part of the saucepan bottom. The resistance becomes significant and the heating consequent therein.



For a non-ferritic material, such as aluminium, the thickness is approximately 590 µm, the saucepan behaves then as a quasi-zero resistor (short-circuit), which is prejudicial to electronics. The board will take this discrepancy into account and will display the phenomenon by making the control panel flash. Therefore, this type of material is not adapted.

4 - THE SAUCEPANS

4.1. - Compatible containers

Induction requires appropriate saucepans.

As cooking is performed by magnetic field, conductive materials are necessary. A simple means is used to check whether an implement is compatible or not: **A magnet should stick to the bottom.**

The containers compatible with the induction are:

- Containers in enamelled steel with or without non-stick coating.
- Cast-iron containers with or without enamelled bottom.
- Certain containers in stainless steel: multilayer stainless steel, ferritic stainless steel. Most stainless steel containers are suitable if they pass the magnet test. (Saucepans, stewpots, frying pans, deep fryers...).
- Aluminium containers with special bottoms.

Containers whose bottoms are not perfectly plane can operate, but however it is necessary for the bottoms not to be too plane as they may damage the hob.

Glass, earthenware, ceramic, copper or aluminium containers without special bottoms are not compatible.

- Choose, if possible, containers with very thick bottoms.
- Avoid any containers with rough (non-enamelled cast iron for example) or dented bottoms that might scratch the plate.
- Don't pull the containers, put them down.

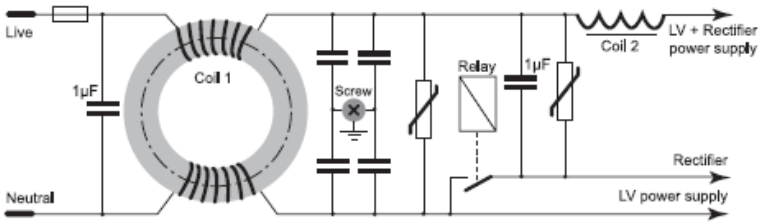
4.2. - Class induction

A "CLASS INDUCTION" marking, mark of excellence, appears on the hob. By choosing a container bearing the same logo, the consumer will make sure of the perfect compatibility with his/her induction hob, under normal operating conditions.

CLASS INDUCTION

To help the consumer choose, a list of implements tested and approved is appended to the user manual.

For this purpose, the same components are almost always used: Filtering capacitors, fuse(s), VDRs, high-inductance choke coils and an indispensable earthing.

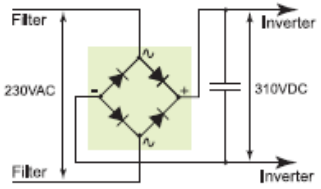


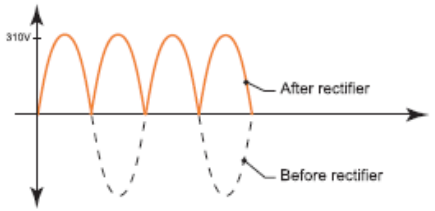
- VDR (Voltage Dependent Resistor) become conducting at 275 or 420 Volts (according to the model) and eliminate voltage peaks.
- The fuse preventing overcurrents is realized using a restriction on the board pad (Fuse pad). Actually, there are two series-mounted fuses. Only the IX1 generation is protected by a cartridge fuse, it is a so-called 'Very rapid' fuse.
- Choke coils have a 'damping' role that only allows low frequencies. Their action is complemented by 1µF capacitors.
- The earthing is used to evacuate high-frequency interference 'residues'.

The screw attaching the filter has thus an essential role and shall be imperatively reinstalled after any action

7.4. - Rectifier

To supply the inducers, it is necessary to apply a high frequency to them. To change over from 50Hz to 50KHz it is first necessary to rectify the mains voltage through a diode bridge. A filtering capacitor (of 5µF generally) is associated in order to attenuate the high-frequency signals. As shown by the illustration, the rectifier output voltage is approximately the mains peak voltage (i.e. 310 VDC approx.) when no inducers are supplied. This voltage drops during the operation.

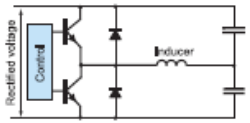




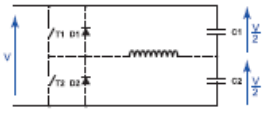
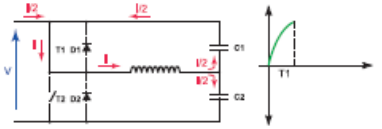
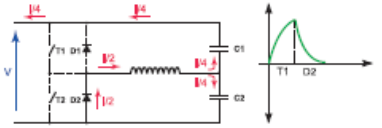
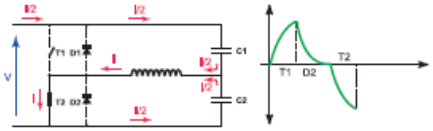
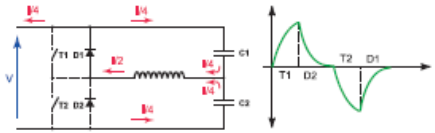
7.5. - Inverter

The inverter is used to transform a DC signal into an AC signal with adjustable frequency. The inverter consists of two transistors (whose technology can vary according to the hob generation), two capacitors and two recovery diodes (indispensable on any inductive circuit)

Transistors are frequency controlled by a generator. This frequency varies between 25KHz (for 2800W) and (50KHz for 500W).



After establishment of a voltage on both capacitors, the operation can be broken down into four phases, as follows:

Phase 0	At rest	Transistors T1 and T2 act as two open switches. Capacitors C1 and C2 are supplied and charged to a voltage V/2, the bridge is balanced, there is no current in the inducer.	
Phase 1	Positive alternation	Transistor T1 is controlled and acts as a closed switch. A current flows through the inducer while C2 is charged to +V and C1 is discharged.	
Phase 2	Positive alternation	Both transistors are blocked but the inducer forces a current flow. C1 is charged again to V/2 and C2 is discharged down to V/2. The bridge is balanced again, => the current goes through 0 again	
Phase 3	Negative alternation	Transistor T2 is controlled and acts as a closed switch. A current flows in reverse direction in the inducer while C1 is charged to +V, and C2 is discharged.	
Phase 4	Negative alternation	Both transistors are blocked but the inducer forces a current flow. This is the recovery phase, where C2 is charged again to V/2, and C1 is discharged down to V/2, the bridge is balanced again, => the current goes through 0 again Return to phase 1.	

7.6. - Control

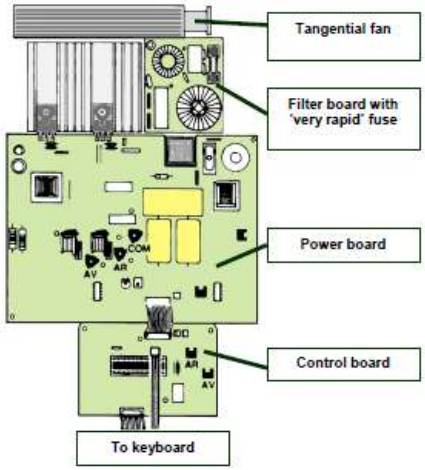
The entire operation is managed by a microprocessor.

- On generation IX1, a specific board performed the control; the power was managed by another board.
- On generation IX2, these two boards have been soldered and have become indissociable.
- On generations IX3, IX3WR and IX4000, power and control are entirely associated. So, the board integrate: A 5 and 12 VDC **clipping power supply** (which is also the keyboard power supply), the **control** part (in liaison with the control keyboard), the **rectifier** part, the **inverter** part, and lastly, for board IX4000, the **filtering** part.

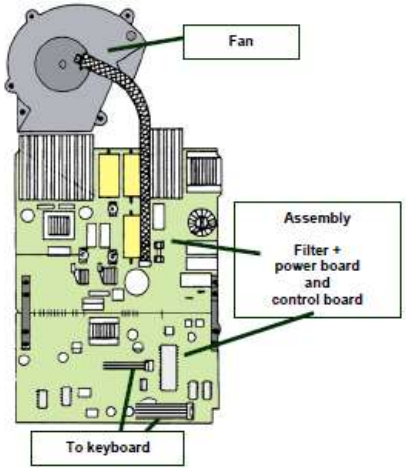
9 - THE IX1 AND IX2 HOBS

9.1. - Description

IX1 : This first generation has been produced between 90 and 91. It is composed four boards.



IX2 : The second generation appeared in 92 and has been produced until 95. The ventilation was reviewed, 'filter' and 'power' boards have been associated. The control board was connected.



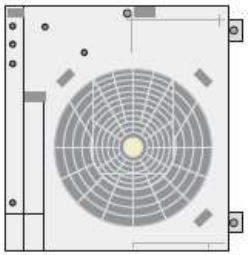
9.2. - Fault codes

F8	The NTC does nor detect T°C rise > 5°C	Display after 2 min during MAXI selection on one of the sources.
°o	Overheating and electronics putting into safety.	Check the installation Check the ventilation.
Fo	Discrepancy detected by the Rear NTC	Room T°C < 5°C Check the assembly, connection and ohmic value of the NTC.
Fo	Discrepancy detected by the Front NTC	Room T°C < 5°C Check the assembly, connection and ohmic value of the NTC.

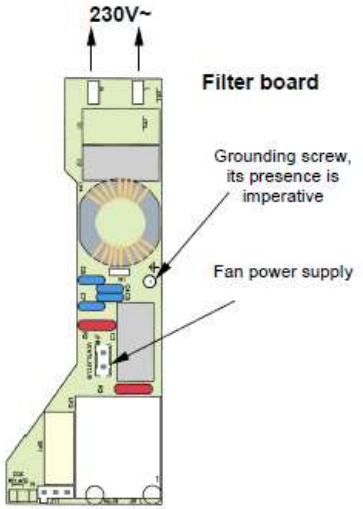
F0	T°C NTC < 3°C	Room too cold
F1 F2	Front source : Pb of shorted NTC (F1) or open circuit (F2)	Check the assembly, connection and ohmic value of the NTC.
F3 F4	Rear source : Pb of shorted NTC (F3) or open circuit (F4)	
F5 F6	Check of transistors: Pb of shorted NTC (F5) or open circuit (F6)	Replace the board as NTC's and transistors are interdependent
F7	Electronics T°C > 75°C	Check the installation Check the ventilation.
F8	Inversion of front and rear NTC's	
F9	Error in temperature measurement	Replace the board

10 - THE IX3 HOBS

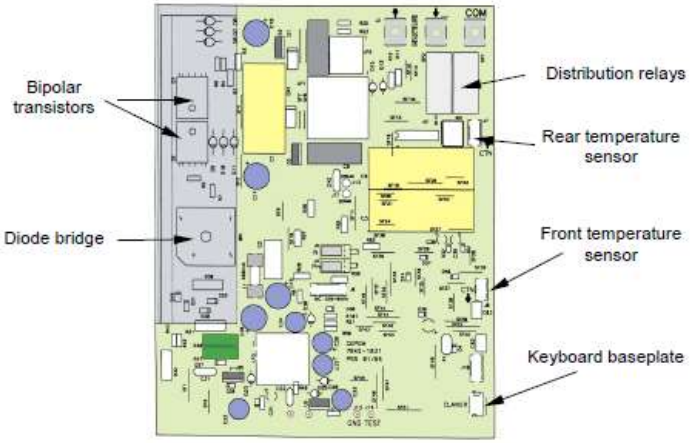
10.1. - Description



The hob of generation IX3 is identified by the presence of a mounting part that appears under the hob, ventilation part, and by its internal composition of two boards (filter and power), with the keyboard possibly having several various shapes according to the trademark and model.



The operating principle of induction hobs of generation 3 is identical with the operation of hobs of generations 1 and 2. When two sources of the same generator are used simultaneously, the power is distributed on sources in an intermittent way by relay switching.



Hob IX3 is progressively replaced by version IX4000 for induction products of range bottom, version IX3WR being intended for range top appliances.

Consumption in standby smaller than 3.5 Watts.

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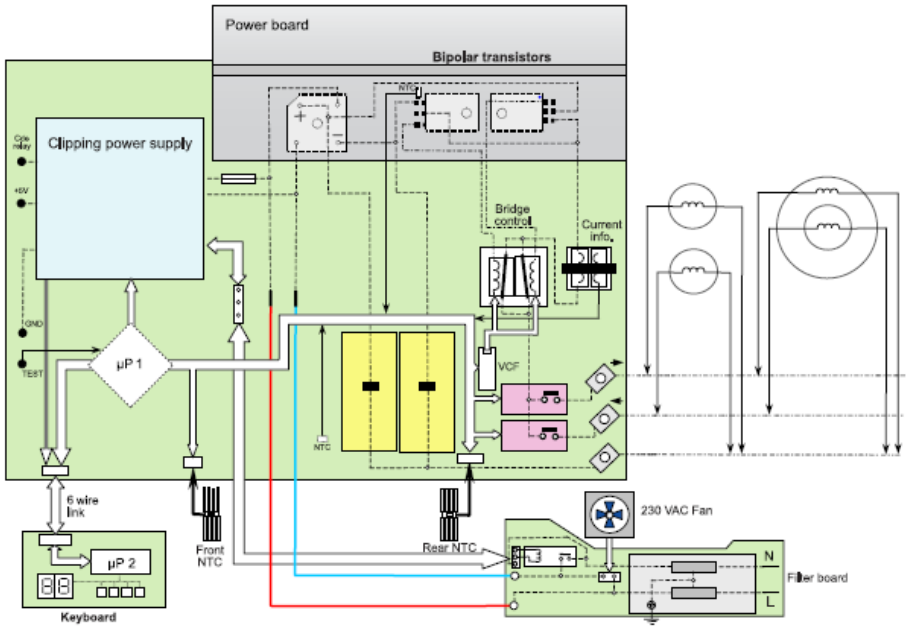
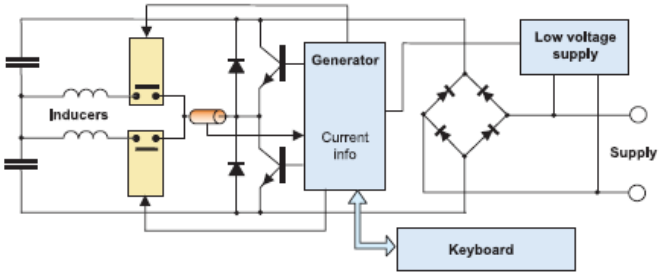
10.2. - Internal organization



10.3. - Details of the power circuit

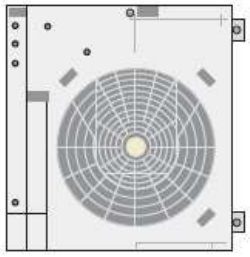
IX3 power circuit is organized like generations IX1 and IX2, namely:



- Front / rear distribution by two relays.
- Saucepan detection using a current transformer. The measurement of current made is used to check the saucepan compatibility.
- Use of two bipolar transistors.
- Integrated rectifier bridge.

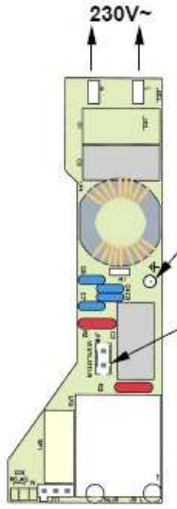
11 - THE IX3WR HOBS

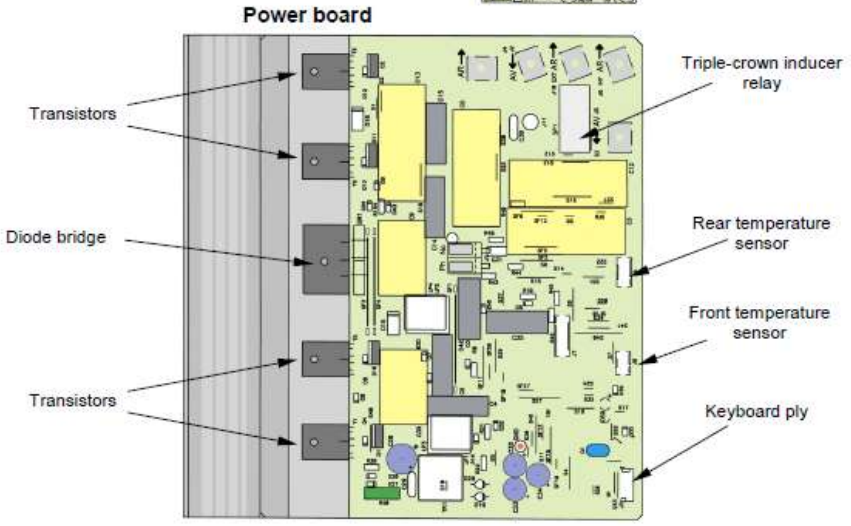
11.1. - Description



The hob of generation IX3 WR (like IX3) is identified by the presence of a mounting part that appears under the hob, the ventilation section, and its internal composition of two boards (filter and power), the keyboard that can have various shapes according to the trademark and model. Only particularity, the power board was modified, the heat sink occupies all the height of the board and both relays have disappeared.

IX3WR allows piloting specific sources, such as the Krône inducer or the triple-crown inducer that justifies the presence of a relay on the board. **This relay is not a power distribution relay.**

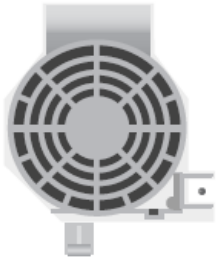




Consumption in standby smaller than 1 Watt

12 - THE IX4000 HOBS

12.1. - Description

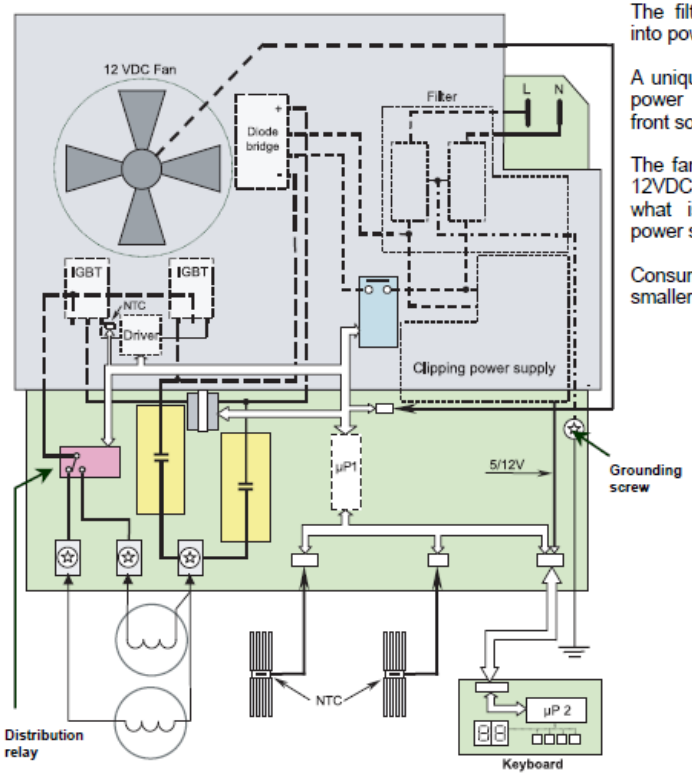


IX4000 is designed to meet the needs of range-bottom inductions. It replaces version IX3, and complements the IX3WR offer.

It is easily identified thanks to its characteristic lower air inlet and controls the standard and Krône sources.

Production start: October 2002.

12.2. - Internal organization



The filter board is integrated into power board.

A unique relay is used for the power distribution between front source and rear source.

The fan used is supplied with 12VDC and is comparable to what is used for computer power supplies.

Consumption in standby smaller than 1W.

THE INDUCTION HOB
Technical training

DIAGNOSTIC

13 - AID TO DIAGNOSTIC

Prior to any action on the hob, you shall correctly define the fault symptom. To help you in your diagnostic, the hob displays a few dysfunction messages, remember that on each power-up, you have to wait a few seconds for it to start operating.

Ensure that the problem is not related to the use of a specific container, check in the **"Class Induction"** list that the container is part of it or check the **"lock-on"** by using a test container.

13.1. - The glass-ceramic breakages

Mechanical and thermal overloads cause very characteristic breakage profiles, which are different on principle, so that the cause is easy to detect.
The four main causes are:

- Overheating (on radiant / halogen source only)
- A shock on the hob
- Too significant a tightening
- A plate subjected to too significant a pressure (contraction)

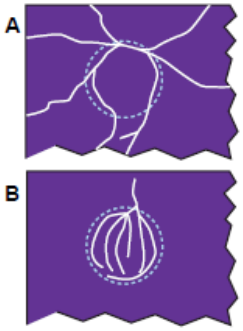
In case of dispute, it is advisable to assemble the plate pieces with adhesive tape before disassembling the plate for assessment purposes.

13.1.1. - Breakage resulting from overheating

This type of breakage must not exist on an induction hob. Overheating causes breakage profiles, as shown by the two drawings of hob, each with a cooking area. Cracks of circular shape, that appear within the cooking area or at the edges, are very characteristic.

Breaks, such as shown by drawing A, appear more often at the beginning of cooking or during cooking. Breaks, such as shown by drawing after hob cooling down. Often, the user will say that the hob cracked during or after cooking without his/her intervening.

Causes: The regulation of the heating element is defective.



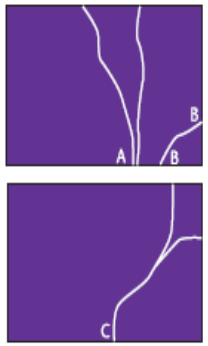
13.1.2. - Breakage resulting from a shock or knock

The break profile looks like a spider web. From the point of impact, radial cracks R start and divide the cooking surface area. Broken pieces are subdivided into several parts by circular cracks T around the place that received the knock. The number of pieces much depends on the shock strength.

13.1.3. - Breakage resulting from too significant tightening

Too important a tightening is due to bad flush mounting of the hob in the frame, or to bad assembly of the frame onto the hob.

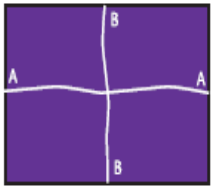
This results in only few cracks, often only one, as shown by the two drawings. Regions of contractions (jamming) can be in a. b. or c. In certain cases, cracks not break completely the plate.



13.1.4. - Flush-mounted hob subjected to contractions

This type of break due to the fact that the hob is flush mounted too fit in the kitchen furniture, more often than not when edges of the working plane are not flat (e.g.: tiled plane).

Which is characteristic in this type of break, is that there is formation of only one crack (a or b) parallel to one of the plate sides and approximately in the centre of this plate. In certain cases, the crack does not separate completely the hob.

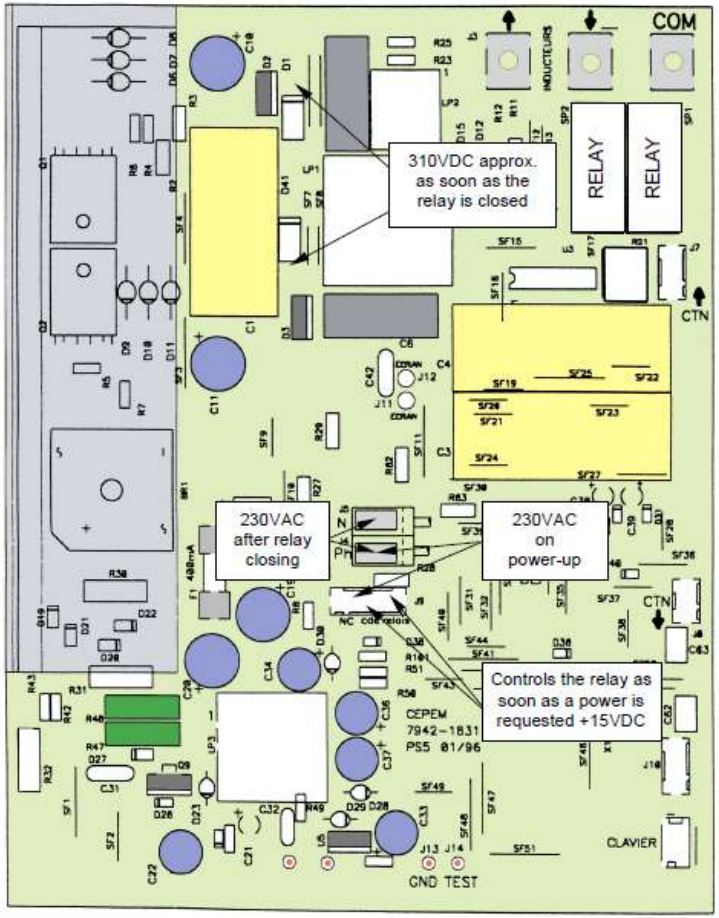


Precautions:
- Check the flatness of the flush-mounting surface.
– Do not tight too much the hob when mounting it flush.

13.3.3. - Measurements on IX3 power board

These test points are used to check whether the independent filter board

- delivers a voltage for the control supply
- delivers a voltage for the power supply
- power relay is controlled by the command



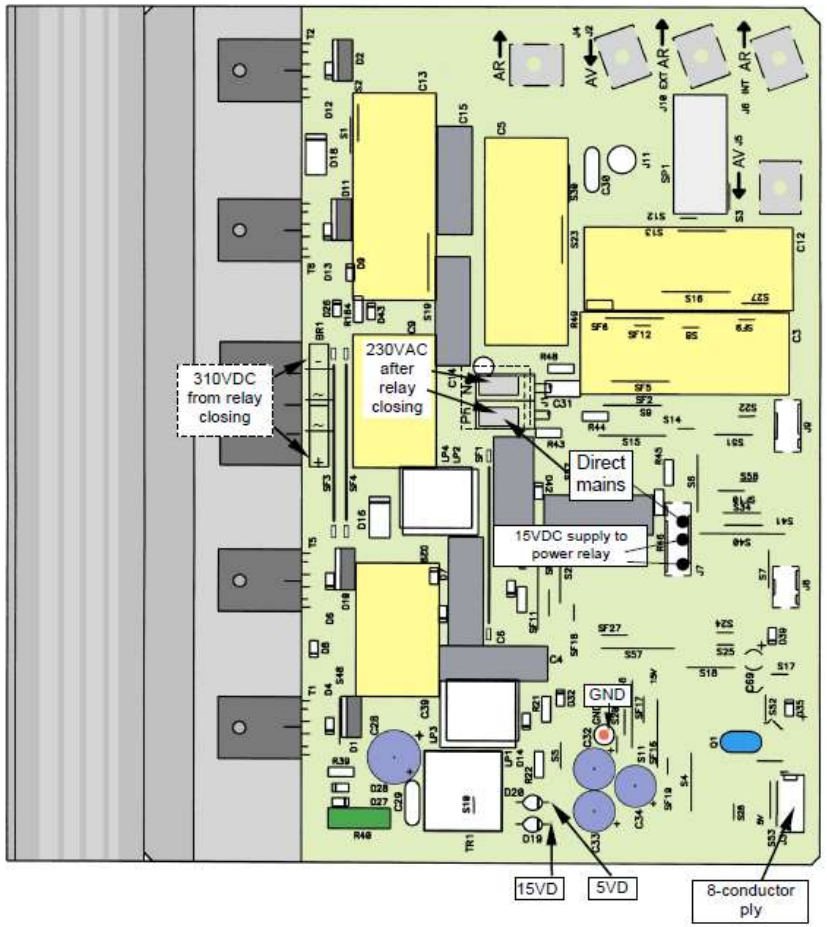
THE INDUCTION HOB
Technical training

DIAGNOSTIC

13.4. - Measurements and checks on IX3 WR power board

These test points are used to check whether the independent filter board

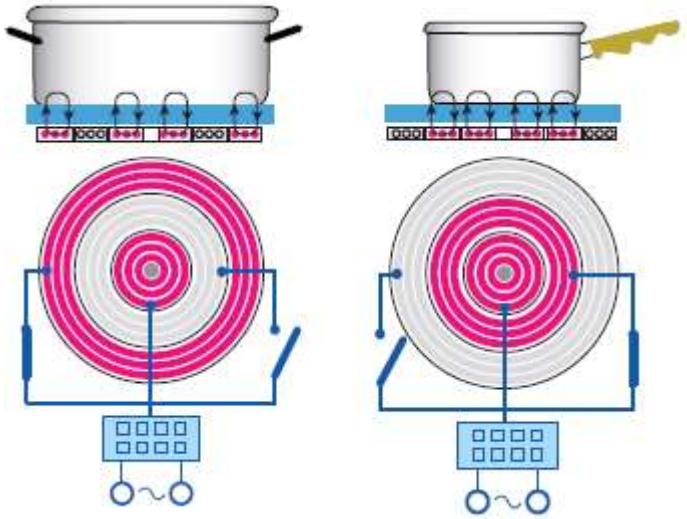
- delivers a voltage for the control supply
- delivers a voltage for the power supply
- power relay is controlled by the command



INDUCTION

Multiple coil cooking zone

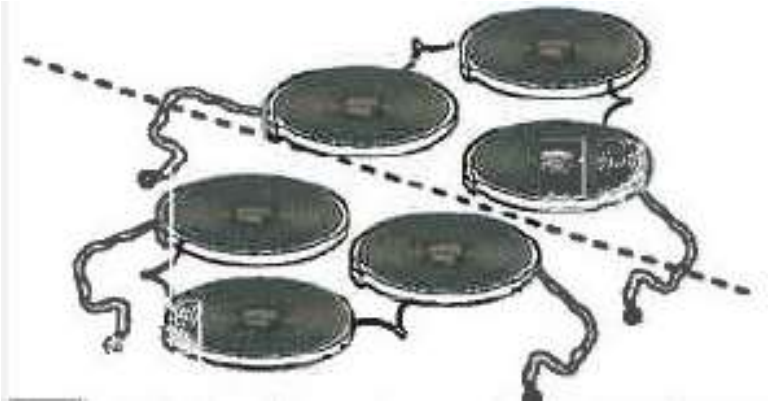
Some units will have one or more cooking zones with two or three pot diameter outlines. These have a induction coil for each diameter and the appropriate coil will be powered according to the pot size used.



INDUCTION

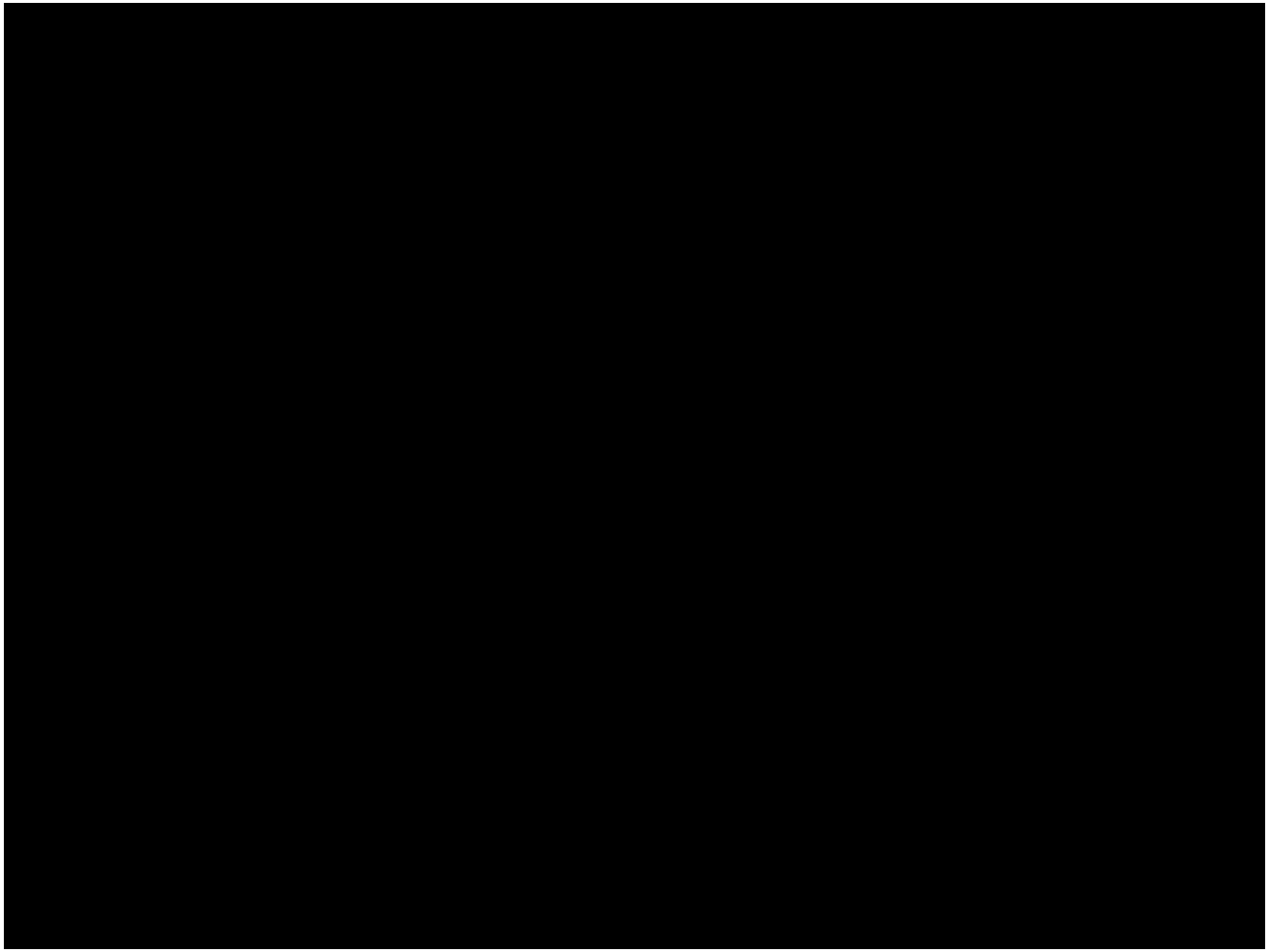
Multi-zone

The Smeg SIM62B and SIM91B have multi-zone cooking zones. The zone is rectangular in shape and is comprised of six induction coils in two groups of three. Each group of three is in series and is powered by its own generator. They will power share when on a high output.



INDUCTION

BKF24IDB Dismantling



INDUCTION

Further Information

The service manual from Brandt which is used in this presentation and the presentation from Smeg are available on request from the Applico Technical Department

APPLICO LTD

DISHWASHERS

VIKING Baumatic smeg Classique HomeKing

DWA149 & DWAFI152 T– Setting the Test Cycle

DWA-DWAU149/157 Test Cycle

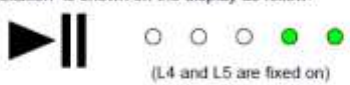
2 – Test cycle

2.1 – Test cycle activation

Activation mode

The test cycle activation can be done if the dishwasher is at the beginning status with empty chamber. To do this it's enough to recal the "program cancellation" mode described at point 2.2. The test cycle is then re-called as following described:

a) close the door and wash cycle on pause condition, press the A/P (start/pause) button. After 5 seconds, the "cycle cancellation" is shown on the display as follow:

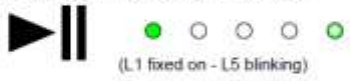


(L4 and L5 are fixed on) Or P0

a) Keep the A/P button pressed till the program warning lights are as following: (only L1 Is switched on):

Or 01

b) Release and then immediately press the A/P button (within 3 seconds). The buzzer gives out an acoustic signal and the test cycle is identified by the following:



(L1 fixed on - L5 blinking) Or C1

For those models which foresee the salt and rinse aid warning lights, these can be blinking during the cycle.

If the test cycle procedure isn't correctly done , it's necessary to repeat the procedure starting from the point (a).

2.2 - Program cancellation and/or end of the test cycle

To cancel the program and to restore the machine to the beginning status, follow the procedure here after described:

a) Close the door and and wash cycle on pause condition, press and keep pressed the A/P (start/pause) button After 5 seconds, the "cycle cancellation" is shown on the display as follow:

(L4 ed L5 accesi fissi) Or P0

a) The machine starts automatically the drain phase, at the end it shows the end cycle.

(L4 and L5 blinking) Or End

Phase	Description	Alternate valve position	warning light status
1)	**TEST CYCLE BEGINNING:** the machine is with the closed door ready for the test cycle execution	-	/ C1
2)	**TEST CYCLE BEGINNING** Close the door. After some seconds the machine starts to fill (at first it starts with stopped motor, then with moving motor) It's could occur that the cycle starts with a drain.	Upper basket (upper washing , if it's foreseen)	/ C2
3)	**DETERGENT DISPENSER OPENING** After the pressure switch level has been reached, the machine ends the filling, the heating element is activated and the dispenser unit is being supplied.	Upper basket	/ C3
4)	**HEATING** The machine starts the heating till reaching 45°. (for some models , if the program selection button is pressed, the heating phase is eliminated, for the touch control versions if any button is pressed the heating phase is eliminated)	Upper basket 30' Lower basket 30'	/ C3
5)	**HEATING** The machine starts the heating till reaching 50°. (for some models , if the program selection button is pressed, the heating phase is eliminated, for the touch control versions if any button is pressed the heating phase is eliminated)	Lower basket	/ C3
6)	**WAITING THE OPERATOR INTERVENTION (it lasts max 30')** Once the temperature is reached, the machine continues to wash. During this phase , the regeneration coil works (it lasts max 30 minutes) **To proceed the cycle, the operator has to lift the antiflood safety device up (polystyrene) or to press the program selection button.**	Lower basket	/ C4
6)	**FINAL DRAIN** Once the antiflood safety device is activated , the machine drains.	(upper basket)	/ C4
7)	**DOOR OPENING/ WAITING THE OPERATOR INTERVENTION/TEST CYCLE END** At the end of the drain phase, the re generation electric valve is activated and possible door opening (max 3'). Once the machine is switched off, **the test cycle ends**. (see point 9). Once the program selection button is pressed, the automatic test proceeds (it lasts max 3+15 minutes)	(upper basket)	/ C5 & / C6
8)	**AUTOMATIC TEST CYCLE FOR THE FINAL LOAD** Once the program button is pressed, the water is filled in order to start the following automatic test cycle till reaching the pressure switch full condition (+ 2")	(UPPER BASKET)	/ C7
9)	**TEST CYCLE END** Once the final load is done, the display shows as described on the right. Switch the machine off and open the door to check the detergent dispenser opening. Switch the machine on and verify that the programs/options warning lights work.	(UPPER BASKET)	/ End

DISHWASHERS

DWA-DWAU149/157 Error codes

ALARM	ANOMALY	WHAT THE DISPLAY SHOWS
E1	The flood prevention system has been activated (if included)	/ E1
E3	Does not heat up	/ E3
E4	Temperature probe disconnected	/ E4
E5	Does not fill	/ E5
E6	Does not drain	/ E6
E7	Malfunction of turbine water meter (flow meter only)	/ E7
E8	Malfunction of alternating valve (alternating wash only)	/ E8
E9	Fill level limit exceeded (flow meter only)	/ E9
E10	Malfunction of turbidity sensor (turbidity sensor only)	/ E10

DWAFI149/152T Test Cycle

2.1 – Test cycle activation

Activation mode

The test cycle activation can be done if the dishwasher is at the beginning status with empty chamber. To do this it's enough to recal the "program cancellation" mode described at point 2.2. The test cycle is then re-called as following described:

a) open the door, press and keep the P button pressed. For the touch versions, keep the soak button pressed. After 5 seconds, the "cycle cancellation" is shown on the display as follow:

b) Keep the P button pressed (for the touch control version , is the soak button) till the program warning lights are as follow (only L1 switched on)

c) Release and then immediately press the P button (or soak button for the touch control versions- within 3 seconds).
The buzzer gives out an acoustic signal and all the warning lights switch on and the program lights are shown as follow:

L1 fixed switched on - L5 blinking (L6 for the touch control versions)
If before entering into the test cycle, the salt and rinse aid warning lights are switched off, during the test cycle they blink.

If the test cycle procedure isn't correctly done , it's necessary to repeat the procedure starting from the point (a).

2.2 – Program cancellation and/or end of the test cycle

To cancel the program and to restore the machine to the beginning status, follow the procedure here after described:

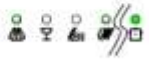
a) open the door and keep the P button pressed (for the touch control versions, press any button) till the following warning lights switch on (P0 su touch control):

L4 and L5 fixed switched on

b) close the door; the machine starts the drain and then after the cycle the control panel shows:

Phase	Description	Alternate valve position	warning light status
1)	**TEST CYCLE BEGINNING:** the machine is with the closed door ready for the test cycle execution	(if it is foreseen) -	/ C1
2)	**TEST CYCLE BEGINNING** Close the door. After some seconds the machine starts to fill (at first it starts with stopped motor, then with moving motor) It's could occur that the cycle starts with a drain	Upper basket (upper washing , if it's foreseen)	/ C2
3)	**DETERGENT DISPENSER OPENING** After the pressure switch level has been reached, the machine ends the filling, the heating element is activated and the dispenser unit is being supplied.	Upper basket	/ C3
4)	**HEATING** The machine starts the heating till reaching 45°. (for some models , if the program selection button is pressed, the heating phase is eliminated, for the touch control versions if any button is pressed the heating phase is eliminated)	Upper basket 30° Lower basket 30°	/ C3
5)	**HEATING** The machine starts the heating till reaching 50°. (for some models , if the program selection button is pressed, the heating phase is eliminated, for the touch control versions if any button is pressed the heating phase is eliminated)	Lower basket	/ C3
6)	**WAITING THE OPERATOR INTERVENTION (it lasts max 30')** Once the temperature is reached, the machine continues to wash. During this phase , the regeneration coil works (it lasts max 30 minutes) To proceed the cycle, the operator has to lift the antiflood safety device up (polystyrene) or to press the program selection button.	Lower basket	/ C4
6)	**FINAL DRAIN** Once the antiflood safety device is activated , the machine drains.	(upper basket)	/ C4
7)	**DOOR OPENING/ WAITING THE OPERATOR INTERVENTION/TEST CYCLE END** At the end of the drain phase, the re generation electric valve is activated and possible door opening (max 3'). Once the machine is switched off, the test cycle ends (see point 9). Once the program selection button is pressed, the automatic test proceeds (it lasts max 3+15 minutes)	(upper basket)	/ C5 / C6
8)	**AUTOMATIC TEST CYCLE FOR THE FINAL LOAD** Once the program button is pressed, the water is filled in order to start the following automatic test cycle till reaching the pressure switch full condition (+ 2")	(UPPER BASKET)	/ C7
9)	**TEST CYCLE END** Once the final load is done, the display shows as described on the right. Switch the machine off and open the door to check the detergent dispenser opening. Switch the machine on and verify that the programs/options warning lights work.	(UPPER BASKET)	/ End

DWAFI149/152T Error codes

ALARM	ANOMALY	WHAT THE DISPLAY SHOWS
E1	The flood prevention system has been activated (if included)	/ E1
E3	Does not heat up	/ E3
E4	Temperature probe disconnected	/ E4
E5	Does not fill	/ E5
E6	Does not drain	/ E6
E7	Malfunction of turbine water meter (flow meter only)	/ E7
E8	Malfunction of alternating valve (alternating wash only)	/ E8
E9	Fill level limit exceeded (flow meter only)	 / E9
E10	Malfunction of turbidity sensor (turbidity sensor only)	/ E10

DWA Series Technical Data

WASH PUMP	
Centrifugal pump driven by a single phase induction motor with a permanent capacitor.	
Power supply voltage and frequency	220-240 V +/- 10% - 50 Hz
Operation	Intermittent
Insulation	Class F
Power	150 Watts
Speed (empty)	2950 rpm
Capacitor (VI 450)	6 µF
Primary coil resistance (20°C)	44 Ohms +/- 7%

DRAIN PUMP	
Centrifugal pump driven by a single phase induction motor with shading coil	
Power supply voltage and frequency	220-240 V ± 10% - 50 Hz
Power	34/30 Watts
Coil resistance (20°C)	155/170 Ohms ± 10%
Max head	1 m
Max capacity	20 litres/min

WATER LOADING SOLENOID VALVE	
Power supply voltage and frequency	220-240 V ± 10% - 50/60 Hz
Min/Max operating pressure	0.5 – 10 bar
Rated	3.5 +/- 7% litres/min
Thread dimension	¾ gas

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DISHWASHERS

DWA Series Technical Data

ALTERNATING WASH VALVE	
Power supply voltage and frequency	230V - 50Hz 115V - 60Hz (U.S.A.)

DETERGENT DISPENSER	
Power supply voltage and frequency	220-240 V ± 10% - 50/60 Hz
Detergent dispenser capacity	48 cc

RINSE AID DISPENSER	
Adjustable dose	1 – 6 / 1 – 4 cm 3
Rinse aid dispenser capacity	140 cm3

HEATING ELEMENT	
Supply voltage	230 V (240 V UK)
Power	2040 Watts
Internal resistance (20°C)	29 Ohms ± 10 %
Thermal protector (cut-off)	NC 98 +/- 5° C
Thermal fuse	206 +/- 10° C

This data is common to all the DWA model dishwashers

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DWA Series: Noisy or Poor Wash Issue

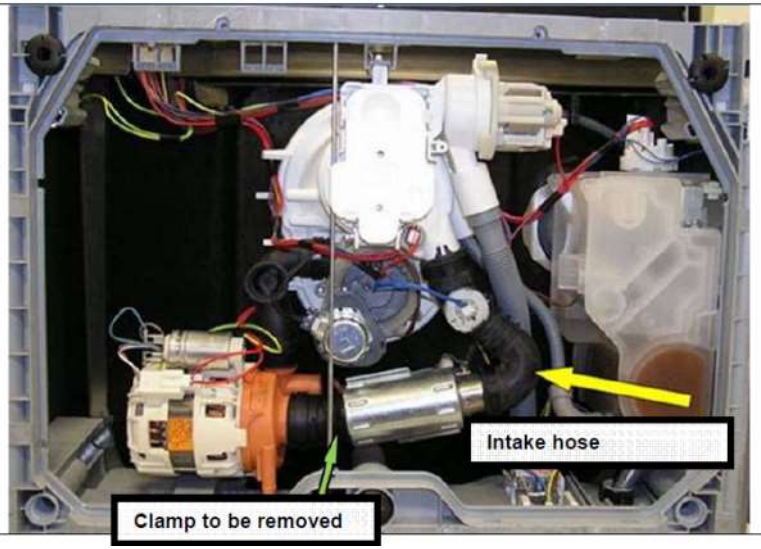
MALFUNCTION: unsatisfactory washing performance and/or noisy wash pump.

REASON: A bottleneck could be created on the intake hose, especially when it is hot; this could cause poor water flow and thus decrease the washing pump power.

HOW TO INTERVENE:
1- properly position the intake hose, as shown below

2- if the intake hose is excessively damaged, replaced it with a new spare part (the component has been strengthened).
the spare part code of the component does not change (code 758973776), since in stock there are already the parts with new configuration

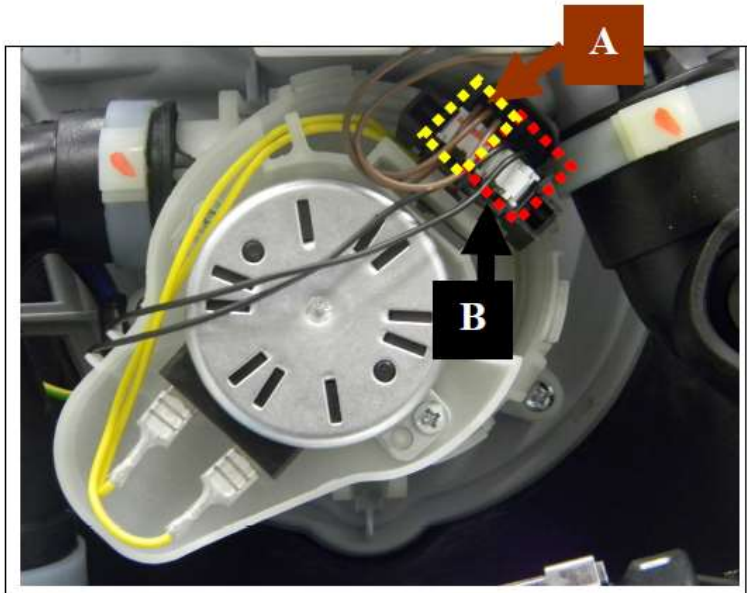
INSTRUCTIONS FOR THE INTAKE HOSE CORRECT POSITIONING



Release the heater element fastening clip, on the washing pump side and turn the resistance in order to eliminate any twist created on the intake pipe.

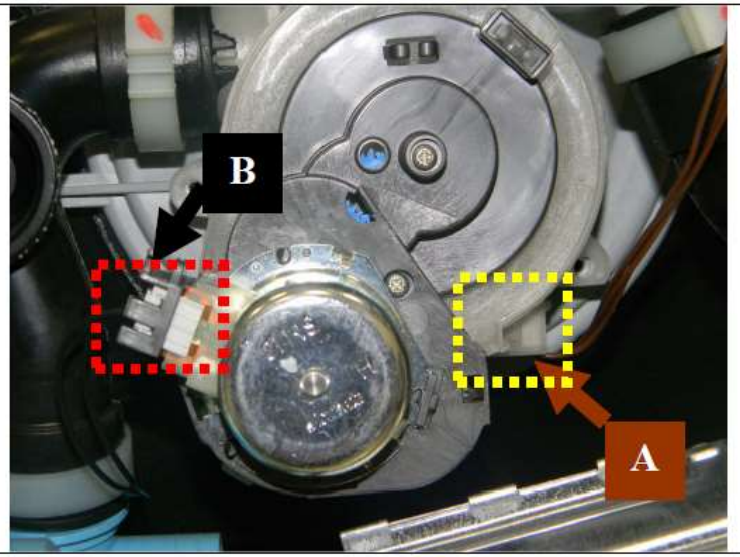
DWA Series: Alternate Valve

There are two different suppliers for the alternate valve. They are interchangeable, the only difference being the power connections as shown below.



NEW CONFIGURATION

The connectors A and B are only shifted, as here upon shown.

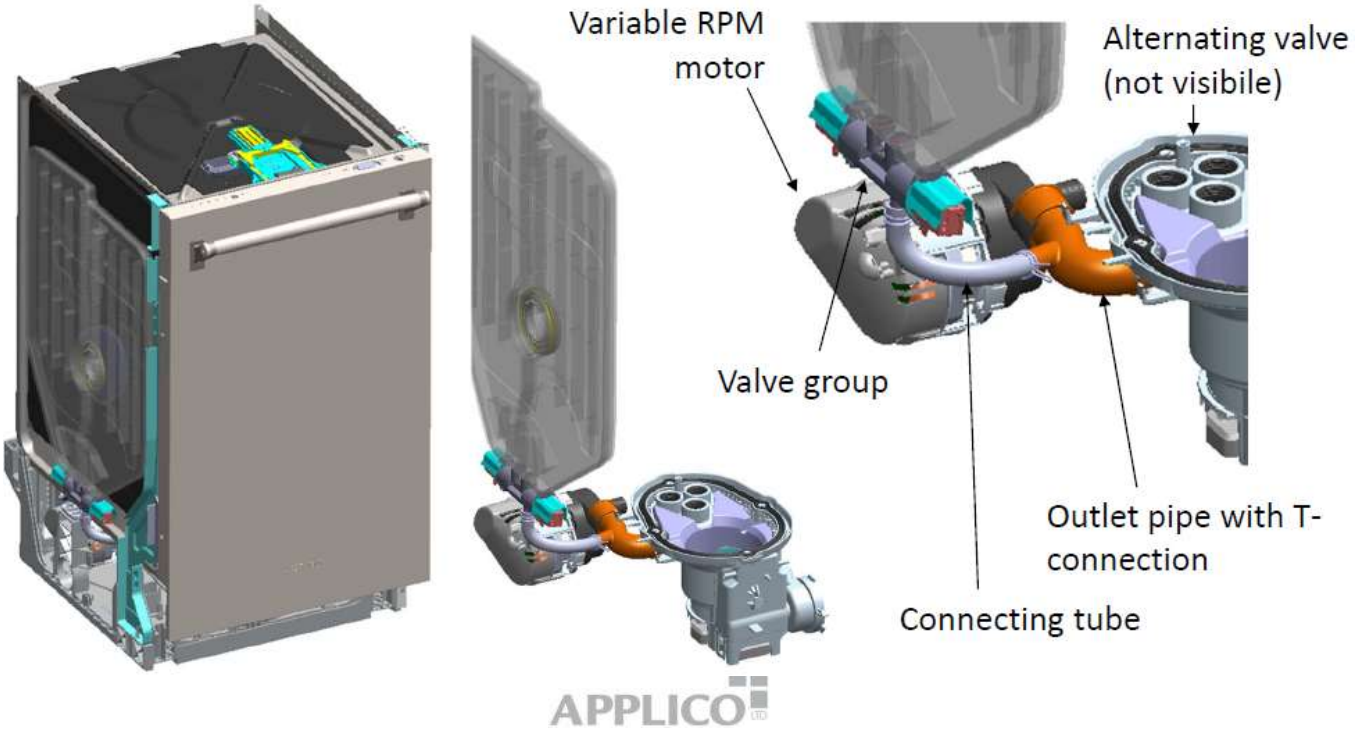


OLD CONIFIGURATION

*DWA*315 Series*

Water Reservoir

To reduce the water consumption of water a side pocket has been introduced (***reservoir***, used both on 60 cm and 45 cm DWS) fixed on the left side of the appliance, having two valves in the lower part, connected to the outlet pipe of the washing pump ***(specific code with T-connection)***. This pocket is always associated with a motor with variable RPM and with an alternating valve with closed position *(specific code)*



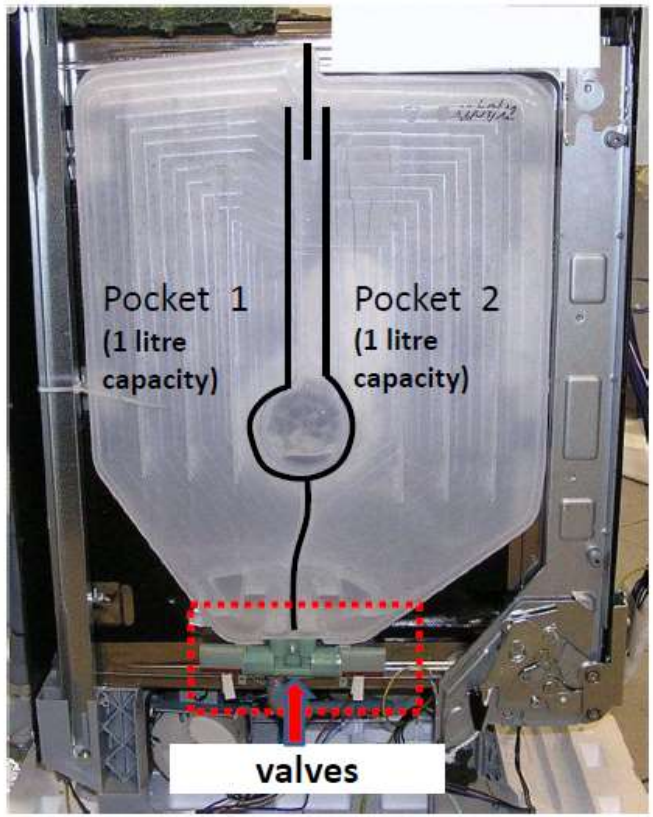
*DWA*315 Series*

Water Reservoir

The reservoir is divided into **2 pockets**, each of which has a capacity of 1 litre. This solution has been identified to facilitate the washing of the tank without increasing the water loads.

The load of the water into the pockets takes place at the end of the rinsing phase, the alternating valve ***(specific code)*** is rotated in such a position as to close the outlet to the spray arms.
The ***valves*** *(thermic actuators)* are supplied and open, the washing pump is kept on at a low rotation speed to ensure the loading of the pocket with little or no noise.

In the starting phase of the next cycle, the water inside the reservoir is released and used, along with water from the mains, for the first washing phase (pre-washing or washing, depending on the configured cycle).



n.b: in the case of faulty valve no error is reported, as water is anyway recovered by the mains.

*DWA*315 Series*

Water Reservoir

The reservori is controlled by an electronic card positioned in the door

1- This extension card is not intelligent (no μP on board) and is controlled directly by the control card.

2- There are no input signals, that is, this card is not connected to any sensor, micro switch, etc.

3- This card does not communicate anything to the main control card.

4- Everything is therefore managed by the control base card.

5- There is no alarm system in case of malfunctioning because the dishwasher would work even if the reservoir had functional problems.

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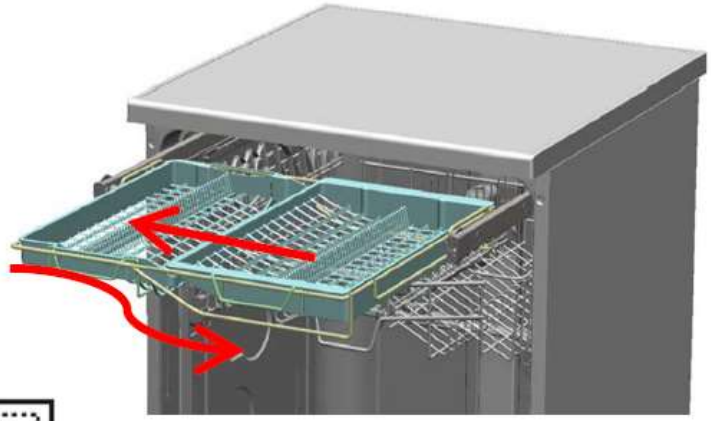
*DWA*315 Series*

New 3rd basket for cutlery, ***FlexiDuo***

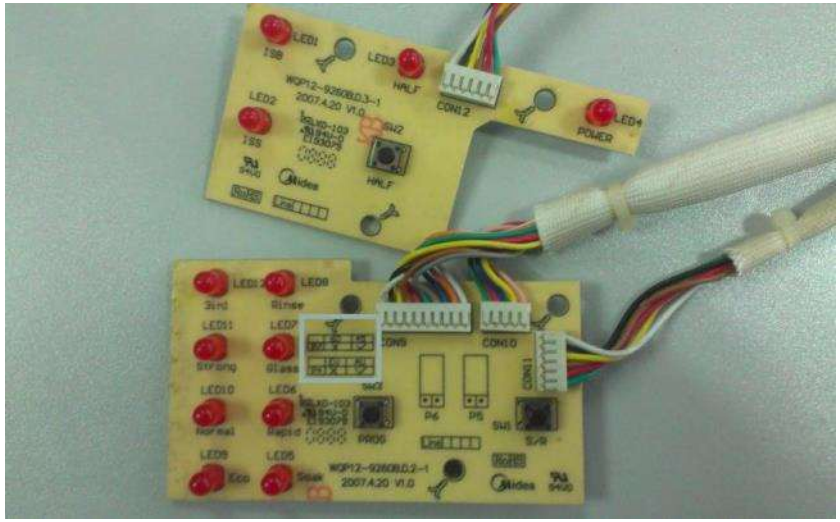


In order to increase the loading flexibility, Smeg presents a new release of the third basket for cutlery that allows a very flexible and versatile loading.
The new and innovative *FlexiDuo* basket is in fact composed of two mobile modules that allow, if necessary, to free up more space in height in the upper basket in the right or left part, and possibly to be removed individually.

BKDW45, BKDW60 Control Boards

The control boards for these two models appear to be identical, however there are two bridges on the board that control the water volume, 3.7l for the 60cm and 2.8l for the 45cm.

These bridges are at P7 and P4 as shown in the following slide.

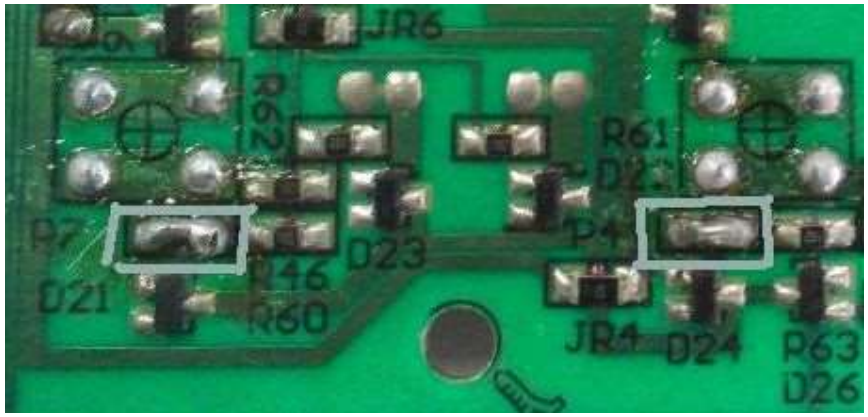


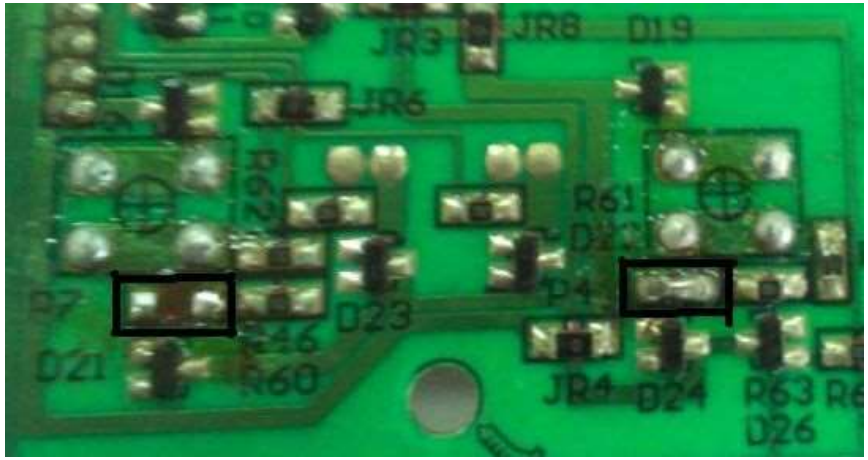
BKDW45, BKDW60 Control Boards

The board with both P4 and P7 bridged is for the 45cm model and is part 674001000246.

The board with only P4 bridged is for the 60cm model and is part 674001000239.

Note that these are the same boards used in the Classique models





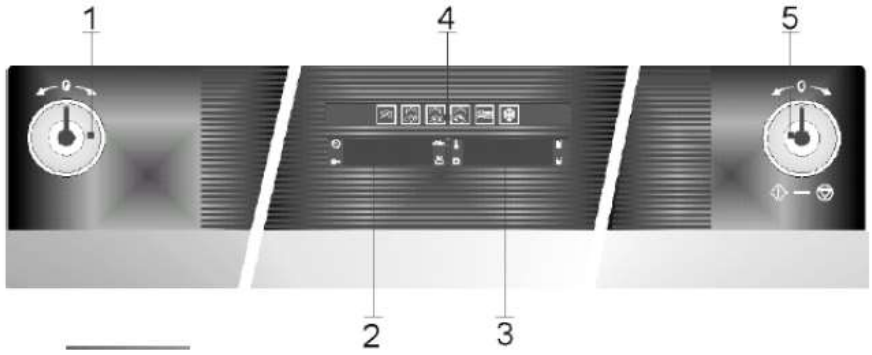
APPLICO LTD

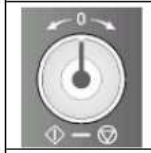
OVENS

OVENS

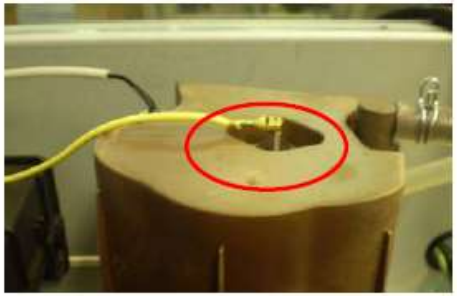
SC45V/SCA45V2 Combination Steam Oven

SC45V/SCA45V2 Combination Steam Oven

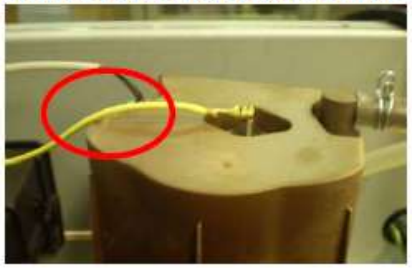


1 PT1	OPERATION PARAMETERS KNOB
 5 PT2	OPERATING MODE KNOB
2 DSP1	TIME/DURATION DISPLAY
3 DSP2	TEMPERATURE/FOOD TYPE DISPLAY
4 DSP3	FUNCTIONS DISPLAY

SC45V/SCA45V2 Combination Steam Oven

COMPONENT	PROBLEM	POSSIBLE CAUSE	OPERATION TO BE CARRIED OUT
BOILER WATER LEVEL SENSOR 	- no steam production - Excessive water inside the oven chamber which could be cause by the pump which continues to feed water to the boiler	- OPEN CIRCUIT	- check the connections - replace the water level sensor
		- FALSE CONTACT OF THE WATER LEVEL SENSOR WIRING	- check that there is continuity between the boiler water level sensor and the wiring
		- PCB MALFUNCTION	- check the PCB output connection - replace the PCB
		- LIMESCALE DEPOSIT ON THE WATER LEVEL SENSOR	- check that the quantity of limescale does not interrupt the electrical contact, therefore clean the sensor
BOILER PRESSURE SENSOR (included on the electronic board)	→ the display shows **Err1** →continuous formation of steam →no water in the tank →excessive pressure inside the oven chamber: - silicone gasket vapour leak - condensation on the rear fan	→ ELECTRONIC BOARD DAMAGED (burned solder points)	- replace the electronic board
		→ SILICONE SENSOR CIRCUIT TUBE INSERTED INCORRECTLY	- check that the connection tube is tightened properly
		→ DEFECTIVE PRESSURE SENSOR	-visually check the pressure sensor (included on the electronic board and shown in the photo on the left). If damaged replace the electronic board.
		- STEAM VALVE IN CONTINUOUS OPERATION	- check that the valve moves freely in both directions. If not, release the valve until it moves freely - read the electromagnetic actuator voltage. If no voltage arrives, replace the electronic board - check the ohm value. The correct value is 1 ohm, otherwise replace the actuator

SC45V/SCA45V2 Combination Steam Oven

COMPONENT	PROBLEM	POSSIBLE CAUSE	OPERATION TO BE CARRIED OUT
OVEN CAVITY TEMPERATURE SENSOR	→ the temperature inside the cavity does not reach 98°-100°C	→ DAMAGED TEMPERATURE SENSOR	→ check the value in ohm. It must be about 100Kohm-25°C. Otherwise replace the temperature sensor → check the connections → position the sensor correctly in the cavity → replace the electronic board
	→ the display shows Err2	→CONNECTOR FALSE CONTACT → SENSOR POSITIONED IN THE CAVITY INCORRECTLY	
BOILER TEMPERATURE SENSOR 	→ no steam generation inside the cavity → the display shows Err7	- DEFECTIVE BOILER TEMPERATURE SENSOR - DEFECTIVE BOILER	- check that the connections are not damaged - replace the sensor - check the ohm value. The correct value is about 44ohm.
	→ the display shows Err2	→BOILER SENSOR CONNECTOR FALSE CONTACT	- check that the connections are not damaged - replace the sensor

SC45V/SCA45V2 Combination Steam Oven

COMPONENT	PROBLEM	POSSIBLE CAUSE	OPERATION TO BE CARRIED OUT
TANK	No steam production, water tank full and the display shows *"DEP"*	tank is positioned incorrectly	→ adjust the position of the tank (it must be parallel to the front surface and 2mm inside the cavity)
		defective pumps	→ check that the connections are not damaged → check that the ohm value of the water pump is about 2ohm → replace the water pump(s)
		defective water tank micro switch	Replace the micro switch
	Water inside the water tank	back flow stop valve silicone gasket is positioned incorrectly and/or damaged	→ adjust the silicone gasket → replace the silicone gasket if it is damaged
	The tank is full but the display shows –LO-	The discharge pump is defective	Replace the discharge pump
		The water circuit is blocked	Replaced the water circuit
DOOR GASKET	Steam leak on the front side	the gasket is positioned incorrectly on the oven chamber frame	Adjust the gasket
		gasket damaged	Replace the gasket

SC45V/SCA45V2 Combination Steam Oven

COMPONENT	PROBLEM	POSSIBLE CAUSE	OPERATION TO BE CARRIED OUT
BOTTOM HEATING ELEMENT	→ check that there is continuity between the element terminals and that there is good contact with the wiring →ensure that the circuit terminals are correctly connected	DEFECTIVE ELEMENT	- check the connections - replace the elements
	Check the main electronic board output power	DEFECTIVE ELECTRONIC BOARD	Replace the main electronic board
	Ensure that the connections are tight	WIRING	Tighten the connections
TANGENTIAL COOLING FAN	Motor in open circuit	-	Replace the motor
	-	CONNECTIONS DAMAGED	Check that the connections are tightened well and restore the connections if damaged
	-	MOTOR IN OPEN CIRCUIT	Replace the motor
ELECTRIC PUMPS	Pump in open circuit and the display shows **Err 6**	-	→ check that the ohmic value of the coil is: -2.4Mohm between anode and cathode → tighten the connections →replace the electric pump
LAMP	-	LAMP BURNT	-Check the filament continuity - replace the bulb
	-	DEFECTIVE DOOR CLOSING/OPENING SYSTEM	Check the lamp output through the electronic programmer terminals (230Vac) with the door closed. Check that the micro switches are operational
	-	DEFECTIVE BOARD	- Check that the connections to the board are not damaged - replace the board

SC45V/SCA45V2 Combination Steam Oven

COMPONENT	PROBLEM	POSSIBLE CAUSE	OPERATION TO BE CARRIED OUT
ELECTRO-MAGNETIC ACTUATOR	Continuous steam release from the front slots	-	→Check the continuity of the electromagnetic actuator → Check that the steam release hole lever moves freely → Replace the actuator

The service manual for the Steam Ovens models SC45V and SCA45V2 is available from the Technical department on request.

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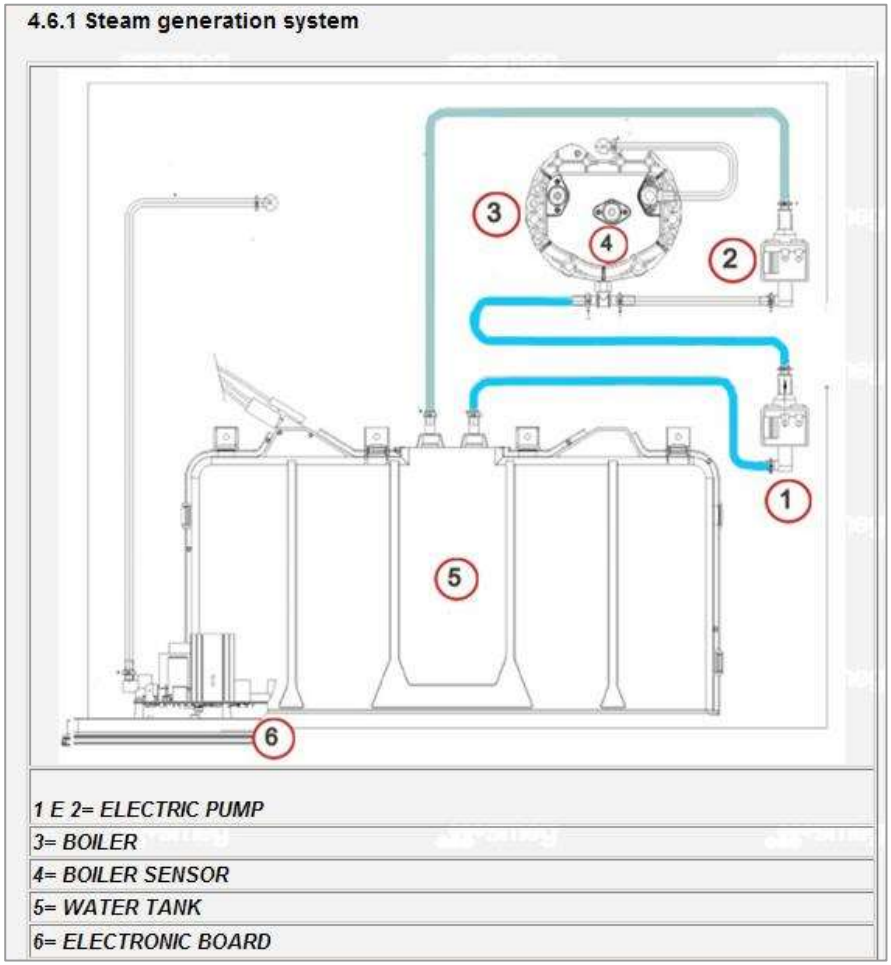
SC45V Combination Steam Oven

Regarding an air lock in the system, sometimes it is possible for the non-return valve (included in the pump) to be blocked, thus causing problems with the hydraulic circuit. To unblock the pump you can follow two different ways:

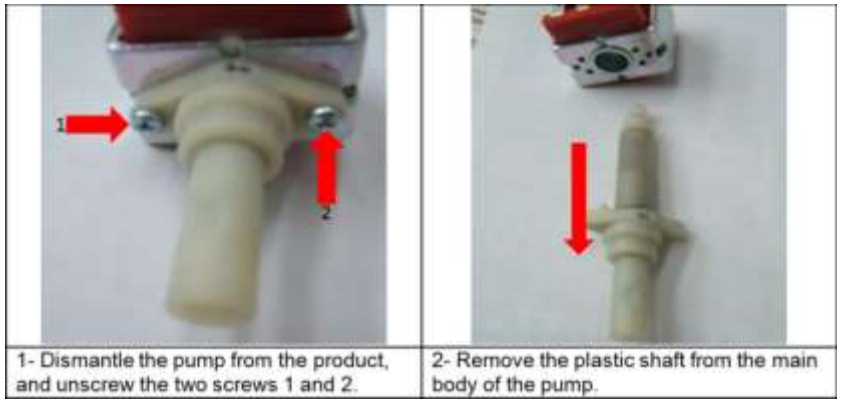
1st Solution:

- Disconnect the water inlet pipe (from the water tank 5 and the pump 1)
- Blow compressed air in the pump inlet connection or (even better) inject water in the same connector using a syringe
- Reconnect the water inlet pipe and test again the machine



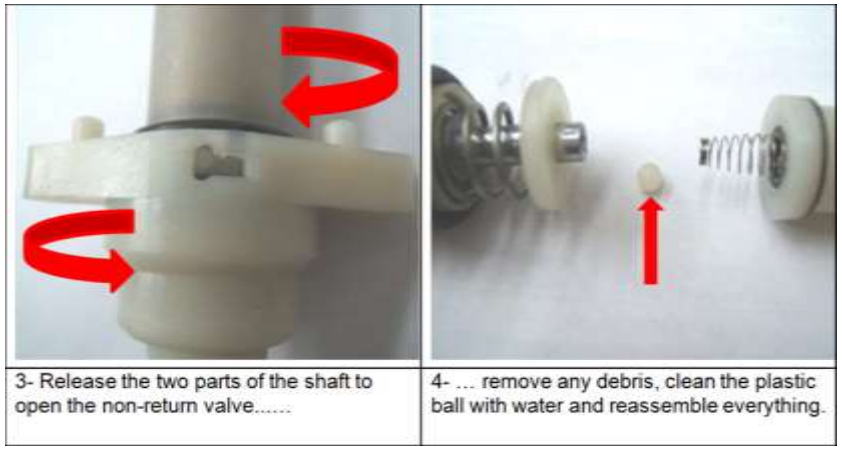
SC45V Combination Steam Oven

2nd Solution:



1- Dismantle the pump from the product, and unscrew the two screws 1 and 2.

2- Remove the plastic shaft from the main body of the pump.



3- Release the two parts of the shaft to open the non-return valve.....

4- ... remove any debris, clean the plastic ball with water and reassemble everything.

The display colour of all the new models is identical (blue) however the intensity of the SC45V display is higher than the other half and full ovens. The half ovens do not have automatic dimming of the display

SC45MC Combination Microwave Oven

smegservice — SERVICE BULLETIN

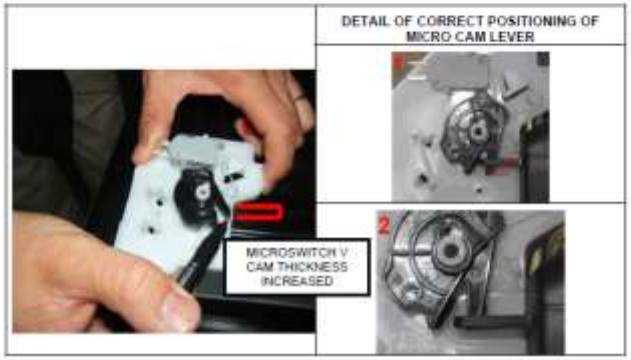
VERSION	00	First Version

Document N.	FRN-SB2008-05-modification of micro cam and inner door hooks_S45_SC45 ovens
Brand	Smeg
Models concerned	S45...../SC45.....
Cause	Irregular operation of the appliance during normal use owing to instable operation of door microswitch.
Description of modification	- microswitch V cam thickness increased - inner door hooks thickness increased
Date of introduction	December 2007
Interchangeability	YES- Kit P/N 994490830 was created for Service (it includes: right and left microswitches, corresponding support, cams and inner door with new configuration N.B.: *the individual components handled by the spares warehouse maintain the same P/N since the stock foresees upgraded parts*

If the cam is in the safety position, owing to reduced interaction between hook and cam, there will be a fast movement that will cause incorrect positioning of the hook spring; this will cause instable microswitch operation which may generate irregular oven operation during normal use (for e.g. When you turn the oven ON, cooking does not start; or cooking stops during the normal operating cycle).

The following improvements have therefore been implemented in order to ensure stable microswitch operation and guarantee correct contact between microswitch cam-hook during door opening/closure operations.

→ Microswitch V cam thickness increased



smegservice — SERVICE BULLETIN

The modification of the micro cam improves cam lever positioning, which remains aligned with the oven front slot (visible with the door open).

→ increase in thickness of the two cooks on either end of the inner door

Kit P/N 994490830 was created for Service, to be assembled on appliances built prior to modification, it includes the following components:

- right gr. microswitch (including support, microswitch, cam)
- left gr. microswitch (including support, microswitch, cam)
- inner door with new configuration hooks

The thickness of the door hooks should be checked when attending a service call to one of these units. If they are not 3.2mm (1/8”) thick the kit should be ordered and the components replaced.

OVENS

SC45MC Combination Microwave Oven

These units have had a power/display board replacement to increase reliability. The boards in question are part numbers 811651502, 811651503, 811651504 or 811651505. These boards should be returned to Applico when replaced as per the instructions of PB2012-06-SM-OVMW-00.

MODELS:	**SC45MC**, S45MC****
PARTS:	**811651503 - DISPLAY BOARD** **811651505 – DISPLAY BOARD**
ISSUE:	**FACTORY FAULTS REPORT**

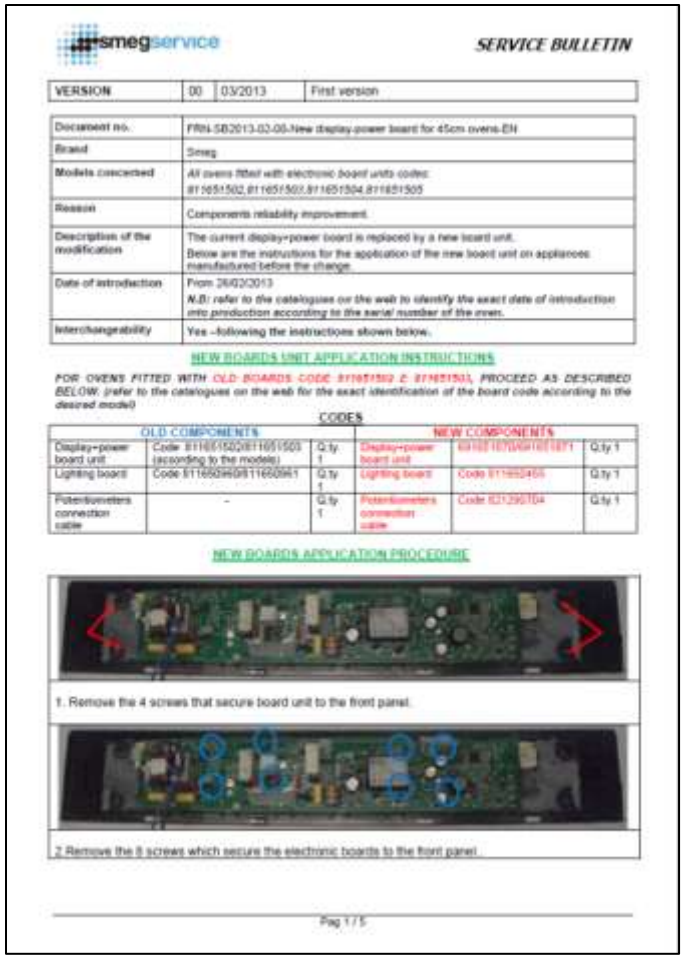
TO ALL SERVICE AGENTS:

The factory has requested that we forward **ALL** faulty boards (including those out of warranty) from the above models. To this end please take the following actions when replacing these parts.

- Fill out the form below.
- Place the faulty board in the packaging of the replacement.
- Tear off the form and place inside the packaging.
- Attach the courier ticket (included) for return to Applico.

MODEL:			
SERIAL NUMBER:			
	(5 numbers)	(4 numbers)	(1 number)
SERVICE AGENT:			
FAULT DESCRIPTION: (Detailed description of the fault, e.g. "LED segments not lighting")			

SC45MC Combination Microwave Oven



smegservice — SERVICE BULLETIN

VERSION	00	03/2013	First version

Document no.	Fitt-SB2013-02-00-New display-power board for 45cm ovens-EN
Brand	Smeg
Models concerned	*All ovens fitted with electronic board units codes: 811651502,811651503,811651504,811651505*
Reason	Components reliability improvement.
Description of the modification	The current display+power board is replaced by a new board unit. Below are the instructions for the application of the new board unit on appliances manufactured before the change.
Date of introduction	From 26/02/2013 *N.B! refer to the catalogues on the web to identify the exact date of introduction into production according to the serial number of the oven.*
Interchangeability	Yes –following the instructions shown below.

NEW BOARDS UNIT APPLICATION INSTRUCTIONS

FOR OVENS FITTED WITH OLD BOARDS CODE 811651502 E 811651503, PROCEED AS DESCRIBED BELOW: (refer to the catalogues on the web for the exact identification of the board code according to the desired model)

CODES

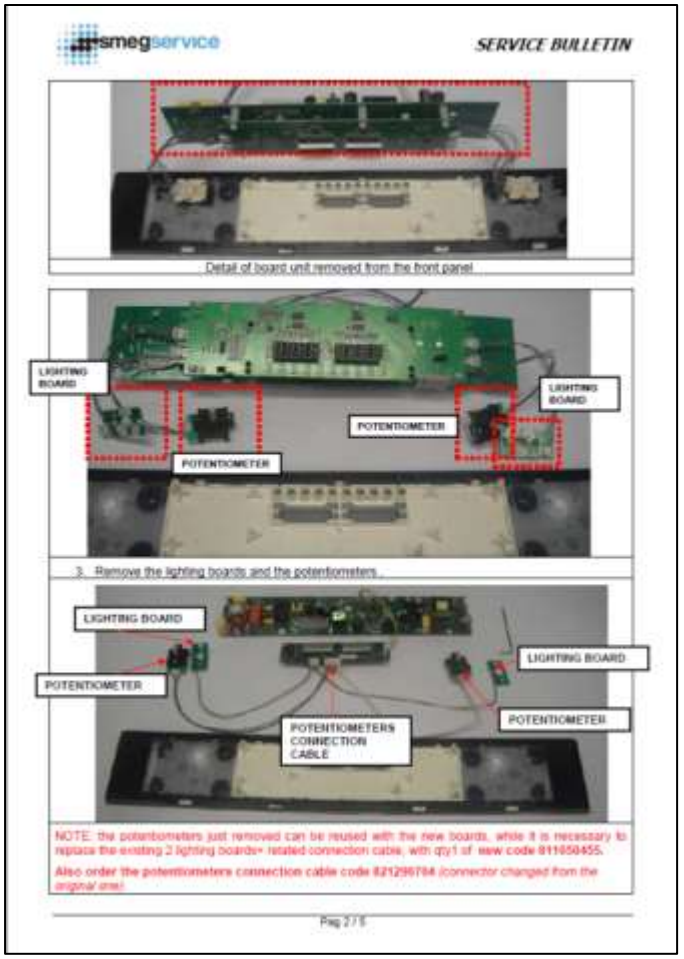
OLD COMPONENTS			NEW COMPONENTS		
Display+power board unit	Code: 811651502/811651503 (according to the models)	Q.ty 1	Display+power board unit	691027[illegible]	Q.ty 1
Lighting board	Code 811650949/811650961	Q.ty 1	Lighting board	Code 811650455	Q.ty 1
Potentiometers connection cable	-	Q.ty 1	Potentiometers connection cable	Code 821290704	Q.ty 1

NEW BOARDS APPLICATION PROCEDURE

1. Remove the 4 screws that secure board unit to the front panel.

2 Remove the 8 screws which secure the electronic boards to the front panel

Pag 1 / 5



smegservice — SERVICE BULLETIN

Detail of board unit removed from the front panel

3. Remove the lighting boards and the potentiometers.

NOTE: the potentiometers just removed can be reused with the new boards, while it is necessary to replace the existing 2 lighting boards+ related connection cable, with qty1 of new code 811650455.

Also order the potentiometers connection cable code 821290704 *(connector changed from the original one)*

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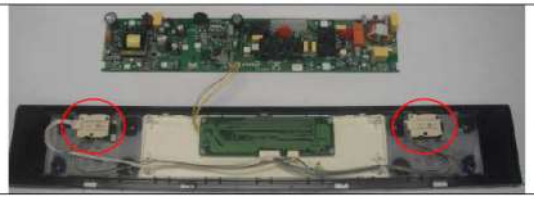
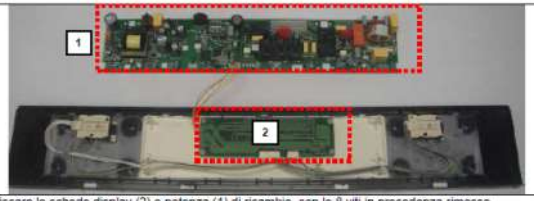
SC45MC Combination Microwave Oven

smegservice — SERVICE BULLETIN



4.Fix the potentiometers and the related connection cable (code. 821290704) and the new lighting boards (qty 1 code. 811650455)



5.Fissare le schede display (2) e potenza (1) di ricambio, con le 8 viti in precedenza rimosse.
Secure the card display (2) and power (1) parts, with the 8 screws previously removed.

6. Secure the power board to the front panel with the 4 screws previously removed.

Note: after the new component application, once the oven is supplied, the displays show:

PU02 = power board version 02 and DV04= display board version 04
It isn't an anomaly, but only the electronic board software version. These details will disappear without any procedure through the control panel.

smegservice — SERVICE BULLETIN

FOR OVENS FITTED WITH OLD BOARDS CODE 811651504 E 811651505, PROCEED AS DESCRIBED BELOW, (refer to the catalogues on the web for the exact identification of the board code according to the desired model)

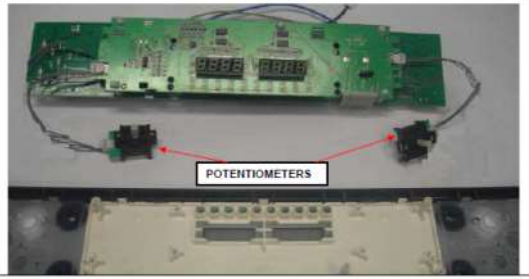
CODES

OLD COMPONENTS			NEW COMPONENTS		
Display+power board unit	Code 811651504/811651505 (according to the models)	Q.ty 1	Display+power board unit	691651872/691651873	Q.ty 1
Potentiometers connection cable	-	Q.ty 1	Potentiometers connection cable	Code 821290704	Q.ty 1
-	-	-	Screws	Code 899371476	Q.ty 4
			Spacers	Code 762810970	Q.ty 4

NEW BOARDS APPLICATION PROCEDURE

1. Remove the 4 screws that secure board unit to the front panel.

2.Remove the 8 screws which secure the electronic boards to the front panel..



3.Once the board unit has been disassembled, remove the potentiometers which have to be re-used with the new board.

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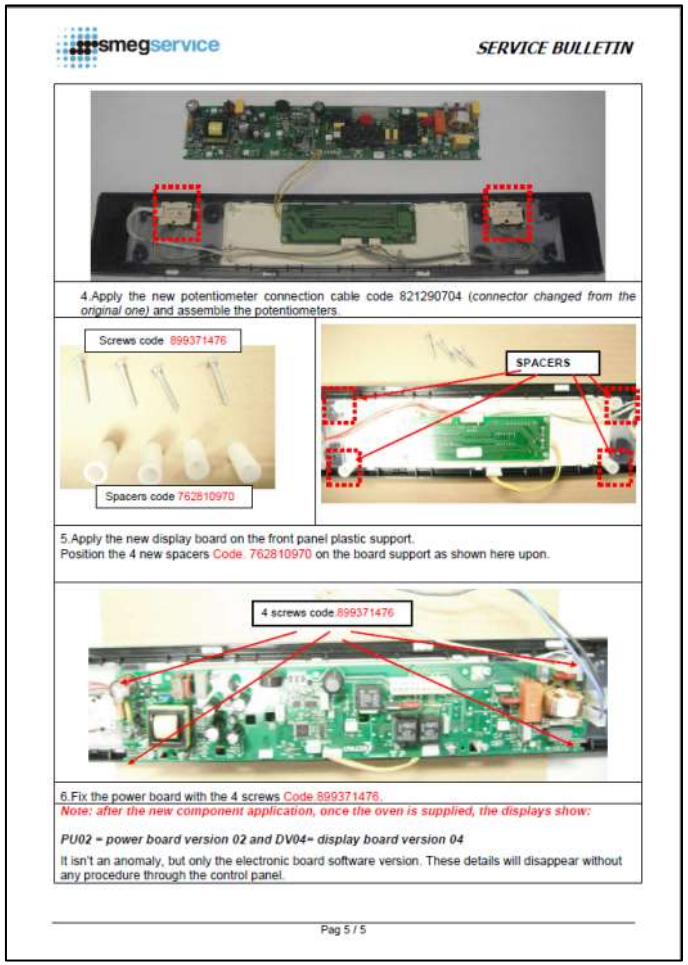
SC45MC Combination Microwave Oven



smegservice

SERVICE BULLETIN

4.Apply the new potentiometer connection cable code 821290704 (*connector changed from the original one*) and assemble the potentiometers.

Screws code 899371476

Spacers code 762810970

SPACERS

5.Apply the new display board on the front panel plastic support.
Position the 4 new spacers Code. 762810970 on the board support as shown here upon.

4 screws code 899371476

6.Fix the power board with the 4 screws Code 899371476.

Note: after the new component application, once the oven is supplied, the displays show:

PU02 = power board version 02 and DV04= display board version 04

It isn't an anomaly, but only the electronic board software version. These details will disappear without any procedure through the control panel.

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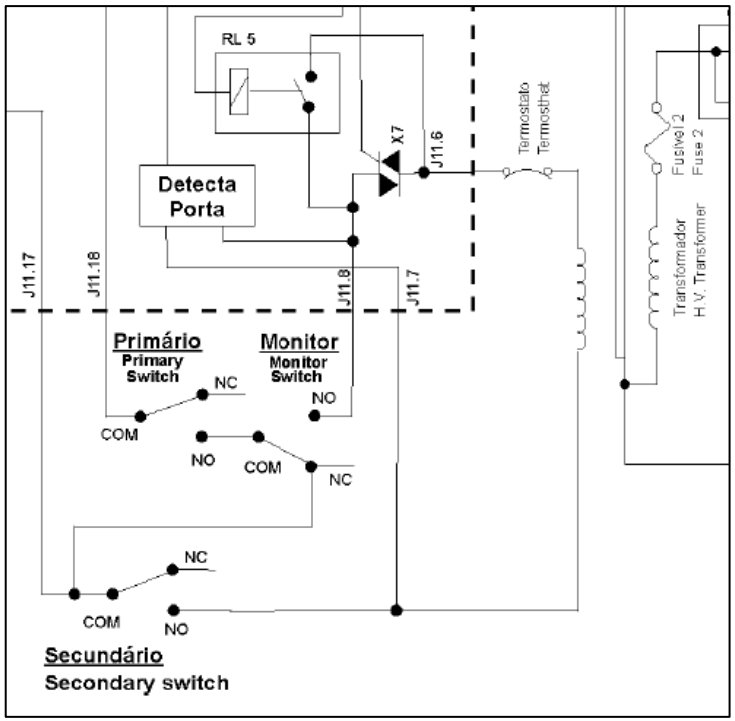
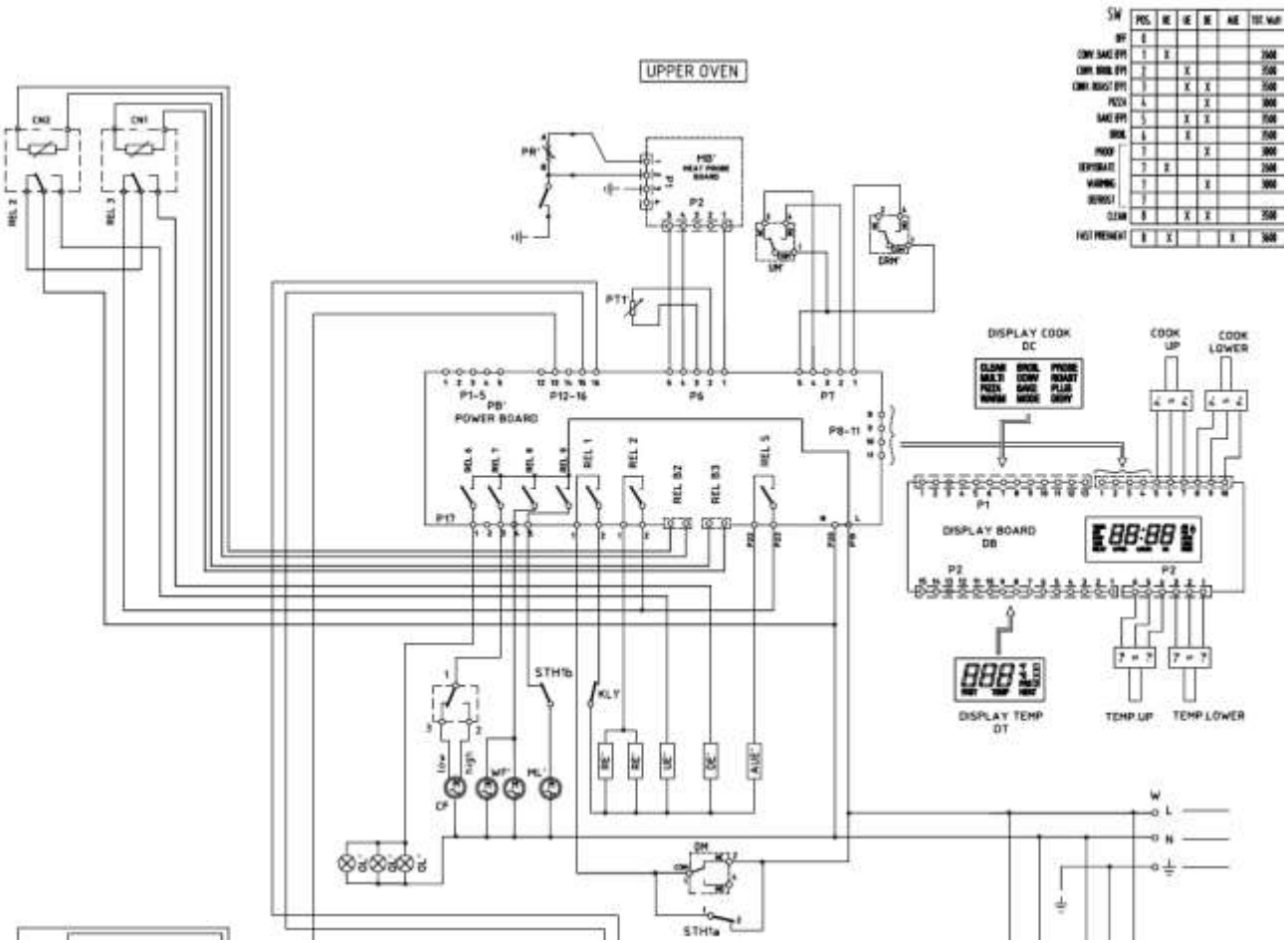


Remember to check the correct operation of the door switches (input and output) before assuming a PCB fault.

OVENS

DOA330 & SOA330 Models

DOA330 & SOA330 Models



OVENS

SF120, 130 & 140 Models

SF120

SF140

SF130

APPLICO LTD

SF120 USER INTERFACE

PROCEDURE	DISPLAY	KNOBS USE	
Network connection	D1 shows "00:00" flashing (this state is active until the time is confirmed)	PT1Sx	Clock decrease (fast if kept turned)
		PT1Dx	Clock increase (fast if kept turned)
		PT1Ph	Time set confirmation
		PT2	Disabled
CLOCK State	D1 displays the time fixed	PT1Sx	It decreases the clock if kept turned for 3 seconds
		PT1Dx	It decreases the clock if kept turned for 3 seconds
		PT1Dx	Fast turning → oven light on/off
		PT1Ph	Minute timer setting - See § 3
		PT2Sx	Cooking function selection
		PT2Dx	

SF120 USER INTERFACE

Secondary menu

- commands block
- show room
- low power mode

Timers

- minute minder
- cooking duration
- delayed end of cooking

Cleaning

- pyrolysis
- eco pyrolysis
- vapor clean

Other characteristics

- Defrost and leavening function
- Lamp power manual control
- Automatic lamp switching off in low power mode after 20 seconds

SF120 TEST MODE

There are two test modes available with the new model ovens, a manual mode – used at the factory for end of line testing, and a self test mode for service purposes. ***BOTH MODES ARE AVAILABLE TO THE SERVICE PERSON***

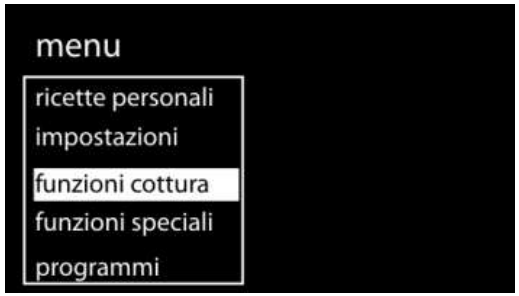
End of line testing

- **used on the assembly line**
- manual procedure
- control with external measuring device
- check of temperature sensor and potentiometers
- display check

Self-test card

- **used in service interventions**
- automatic testing without external measurement
- manual testing with operator control
- check of temperature sensor and potentiometers
- display check

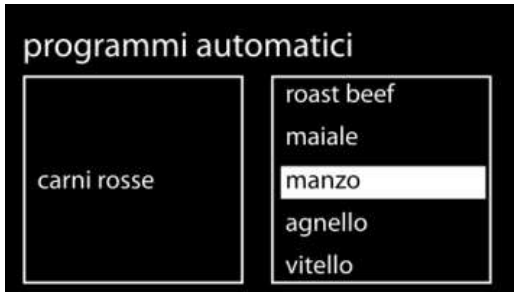
SF130 USER INTERFACE



Main menu

Functions menu

Timers



Pre-stored recipes

OVENS

SF140 USER INTERFACE

Main menu

Functions menu

Active functions

Timers

Pre-stored recipes

Custom recipes

APPLICO

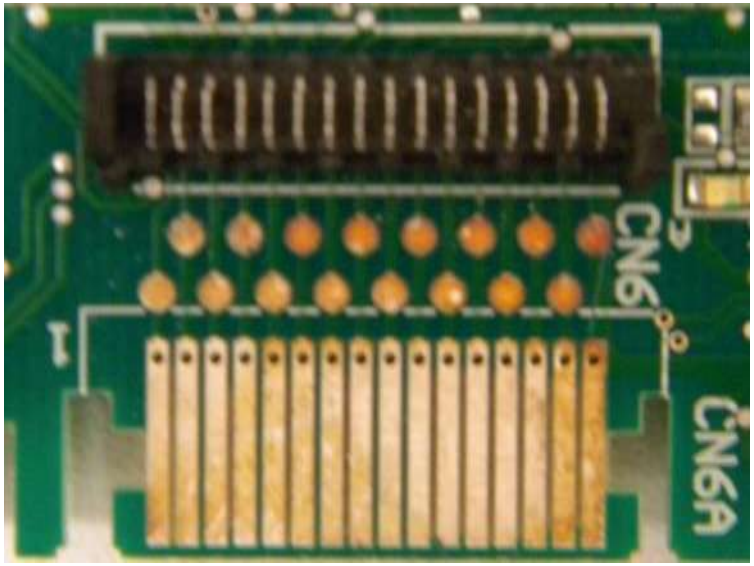
OVENS

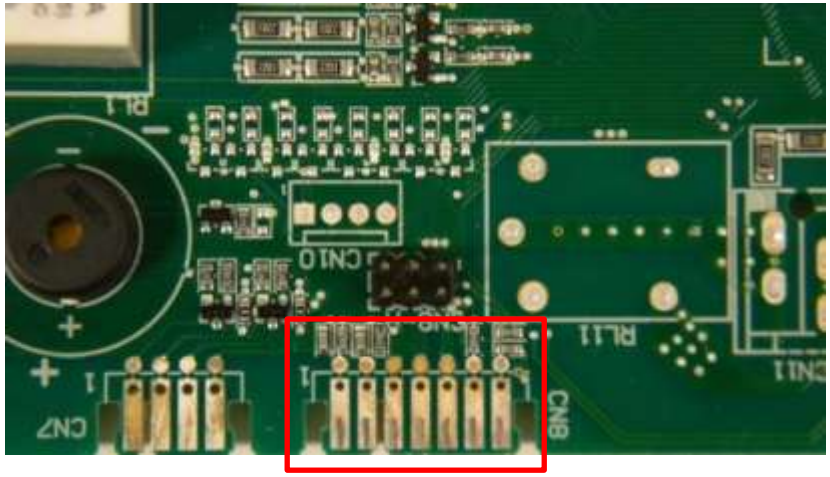
NEW POWER BOARD – 3RD GENERATION

- Design of new models with new displays
- Hardware compatibility with currently produced models
- Increased possibility to control other types of display
- Power supply modified for stand-by normatives (< 1W from 01.01.2013)
- Extra relay added for future developments
- Additional devices have been introduced in order to manage further controls for future versions
- Added feedback on grill and sole resistances

NEW POWER BOARD – 3RD GENERATION

New connector foreseen
for display connection

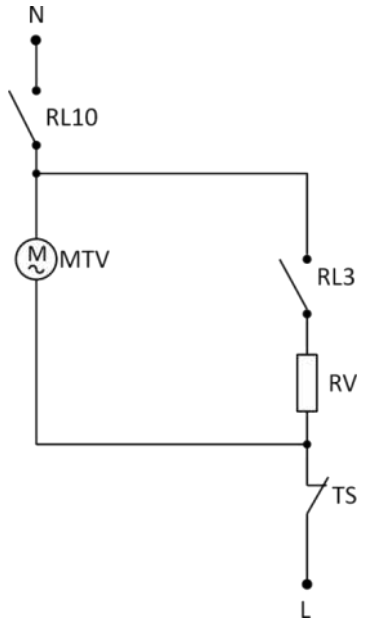




Introduction of serial connection
for external boards

NEW POWER BOARD – 3RD GENERATION

Modified faston connector (asymmetrical) to avoid inversion in assembly



The circular heating element wiring has been modified to increase safety

NEW POWER BOARD – CLOSED CIRCUIT TESTS

Purpose: to allow μP to assess the presence and function of the components connected to the relays

The following actuators are checked:

RL2: Grill heating element RG
RL3: Fan heating element RV
RL4: Bottom heating element RS
RL6: cooling fan ECF @ MAX speed
RL7: cooling fan ECF @ MIN speed
RL8: door lock actuator BP
RL9: Auxiliary resistor 1 AUX1
RL10: Oven fan MTV
RL11: Auxiliary resistor 2 AUX2

NEW POWER BOARD – ERROR CODES

Err1: faulty temperature sensor

Activated if the signal from the PT1000 sensor (converted in °C) provides a temperature value out of the -20°C / 600°C range for at least 10sec

Danger: high internal temperatures that may endanger the user's health

Actions

All the heating elements switched OFF - ECF (cooling motor) ON at MAX speed

Cooking cycle STOPPED - Buzzer ON

The alarm condition disappears:

- If measured T is within the range for at least 10 consecutive seconds
- The display is switched to STAND-BY (e.g. handle in 0 position)

If the alarm is reset but the alarm condition remains, it is reactivated as soon as the oven is reactivated

NEW POWER BOARD – ERROR CODES

Err2: temperature too high

- Measured temperature > 410°C for 10sec **and** the pyrolisis is not active

Danger : high internal temperatures that may endanger the user's health

Actions

Door-lock activated –
All the heating elements are switched OFF –
ECF ON at MAX speed

Cooking cycle STOPPED - Buzzer ON

The alarm condition disappears:

- If measured T is within the range for at least 10 consecutive seconds
- The display is switched to STAND-BY (e.g. handle in 0 position)

If the alarm is reset but the alarm condition remains, it is reactivated as soon as the oven is reactivated

NEW POWER BOARD – ERROR CODES

Err4: door-lock wrongly activated

- Pyrolytic cycle selected **and** door-lock not activated within 90sec
- Pyrolytic cycle not selected **and** door-lock activated (in this case the door-lock has been activated by the external safety Tstat due to T excessively high)

Danger : high internal temperatures that may endanger the user's health

Actions

All the heating elements are switched OFF – ECF ON at MAX speed
Cooking cycle STOPPED - Buzzer ON

The alarm condition disappears:

- Cool oven at the end of the pyrolysis and door-lock not activated
- The display is switched to STAND-BY (e.g. handle in 0 position)

NEW POWER BOARD – ERROR CODES

Err5: circular heating element error

- Relay active when SW does not expect it to be
- The fan heating element RV is disconnected or interrupted
- The safety Tstat has opened **and** the internal temperature < 150°C

Actions

All the heating elements are switched OFF – ECF ON at MAX speed
Cooking cycle STOPPED - Buzzer ON

The alarm condition disappears:

- The cause of the alarm has disappeared (e.g. RV reconnected)
- The display is switched to STAND-BY (e.g. handle in 0 position)

NEW POWER BOARD – ERROR CODES

Err6: oven internal fan MTV error

- MTV not connected
- MTV relay not closed when SW expects it to be

Actions

All the heating elements are switched OFF – ECF ON at MAX speed

Cooking cycle STOPPED - Buzzer ON

The alarm condition disappears:

- The cause of the alarm has disappeared (e.g. RV reconnected)
- The display is switched to STAND-BY (e.g. handle in 0 position)

NEW POWER BOARD – ERROR CODES

Err7: grill heating element RG error

- Relay active when SW does not expect it to be
- The heating element is disconnected
- The safety Tstat has opened **and** the internal temperature < 150°C

Danger : high internal temperatures that may endanger the user's health

Actions

All the heating elements are switched OFF – ECF ON at MAX speed
Cooking cycle STOPPED - Buzzer ON

The alarm condition disappears:

- The cause of the alarm has disappeared (e.g. RV reconnected)
- The display is switched to STAND-BY (e.g. handle in 0 position)

NEW POWER BOARD – ERROR CODES

Err8: ECF tangential cooling fan error

- ECF not connected
- ECF relay not closed when SW expects it to be

Risk:potential damage to electrical components on the control panel and high temperatures on the front panel.

Actions

All the heating elements are switched OFF – ECF ON at MAX speed
Cooking cycle STOPPED - Buzzer ON

The alarm condition disappears:

- The cause of the alarm has disappeared (e.g. RV reconnected)
- The display is switched to STAND-BY (e.g. handle in 0 position)

NEW POWER BOARD – ERROR CODES

Err9: bottom heating element RS error

- Relay active when the SW does not expect it to be
- The heating element is disconnected
- The safety Tstat has opened **and** the internal temperature < 150°C

Danger : high internal temperatures that may endanger the user's health

Actions

All the heating elements are switched OFF – ECF ON at MAX speed
Cooking cycle STOPPED - Buzzer ON

The alarm condition disappears:

- The cause of the alarm has disappeared (e.g. RV reconnected)
- The display is switched to STAND-BY (e.g. handle in 0 position)

Pre-heating operation – old models

SAP112-8		
	Preheating phase	**Cooking phase**
Function on the display	***Function/Element used***	***Function/Element used***
ECO with CIRCULAR	FAN element + internal fan (IF)	FAN element + IF
STATIC	GRILL + BOTTOM element	GRILL + BOTTOM element
GRILL	GRILL + TOP element	GRILL + TOP element
Rotisserie GRILL	GRILL + TOP element + turnspit	GRILL element + turnspit
STATIC fan assisted	GRILL + BOTTOM element + IF	GRILL + BOTTOM element + IF
GRILL fan assisted	GRILL + TOP element + IF	GRILL + TOP element + IF
BOTTOM fan assisted	GRILL + BOTTOM element + IF	GRILL + BOTTOM element + IF
CIRCULAR	FAN element + IF	FAN element + IF
TURBO	FAN element + IF	GRILL + FAN + BOTTOM elem. + IF
DEFROSTING and PROVING	GRILL + IF	GRILL + IF
PYRO ECO	GRILL + BOTTOM element	GRILL + BOTTOM element
PYRO	GRILL + BOTTOM element	GRILL + BOTTOM element

OVENS

Pre-heating operation – old models

SCP160/171						
FUNCTION	**HEATING ELEMENT 1**	**HEATING ELEMENT 2**	**HEATING ELEMENT 3**	**OTHER**	**PHASE 1**	**PHASE 2**
ECO STATIC	GRILL 1800W	LOWER 1300W	-	-	GRILL 1800W	LOWER 1300W
STATIC	UPPER 100W	LOWER 1300W	-	-	SERIES 2400W	LOWER 1300W
LOWER	LOWER 1300W	-	-	-	-	-
WIDE GRILL	GRILL 1800W	UPPER 100W	-	-	-	-
NARROW GRILL	GRILL 1800W	-	-	-	-	-
VENTILATED NARROW GRILL	GRILL 1800W	-	-	FAN MOTOR	-	-
VENTILATED WIDE GRILL	GRILL 1800W	UPPER 100W	-	FAN MOTOR	SERIES 2400W + FAN	GRILL 1800W + FAN
STATIC VENTILATED	UPPER 100W	LOWER 1300W	-	FAN MOTOR	SERIES 2400W + FAN	LOWER 1300W + FAN
LOWER VENTILATED	LOWER 1300W	-	-	FAN MOTOR	-	-
CIRCULAR	CIRC 2700W	-	-	FAN MOTOR	-	-
TURBO	CIRC 2700W	UPPER 100W	LOWER 1300W	FAN MOTOR	CIRC 2700W + FAN	UPPER + LOWER + 2400W + FAN

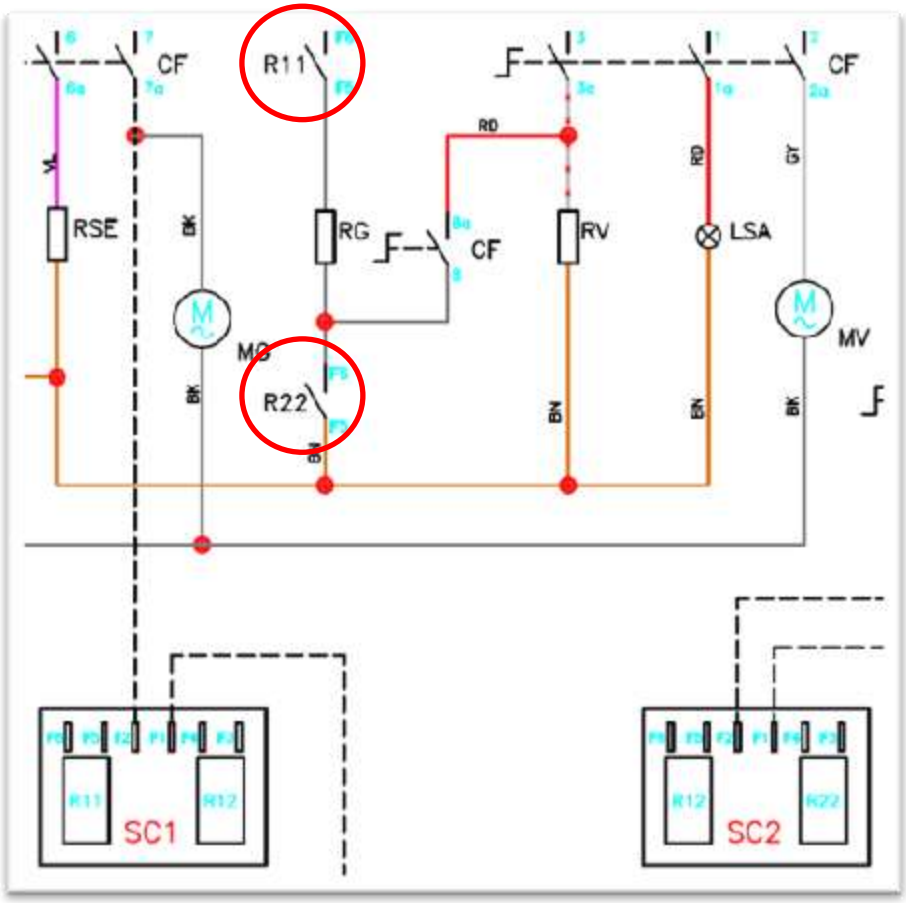
Pre-heating operation – new models

SFPA395X - SFPA130				
	Preheating phase	**Cooking phase**		
Function on the display	***Function/Element used***	***Function/Element used***	***°min***	***°max***
ECO with CIRCULAR	FAN element + internal fan (IF)	FAN element + IF	50	280
STATIC	GRILL + BOTTOM element	GRILL + BOTTOM element	50	280
GRILL	GRILL + TOP element	GRILL + TOP element	50	280
BOTTOM	GRILL + BOTTOM element	GRILL + BOTTOM element	50	280
STATIC fan assisted	GRILL + BOTTOM element + IF	GRILL + BOTTOM element + IF	50	280
GRILL fan assisted	GRILL + TOP element + IF	GRILL + TOP element + IF	50	280
BOTTOM fan assisted	GRILL + BOTTOM element + IF	GRILL + BOTTOM element + IF	50	280
CIRCULAR	FAN element + IF	FAN element + IF	50	280
TURBO	FAN element + IF	GRILL + FAN + BOTTOM elem. + IF	50	280
CIRCULAR+GRILL fan assisted	FAN + GRILL elem. + IF	FAN + GRILL elem. + IF	50	280
PROVING	GRILL element	GRILL element	40	40
DEFROSTING	GRILL element + IF	GRILL element + IF	30	30
FOOD WARMING	FAN element + IF	FAN element + IF	40	80
KEEP WARM	GRILL + BOTTOM element	GRILL + BOTTOM element	60	100
PYRO ECO	GRILL + BOTTOM element	GRILL + BOTTOM element	470	470
PYRO	GRILL + BOTTOM element	GRILL + BOTTOM element	470	470

SA708 Commutator

A modification has been made by Smeg on some of the new 70cm model ovens. This is to relieve the loading of the commutator (811730261). It entails fitting two relay boards (811650197) to switch the load of the broil/grill element.

We are trying to ascertain if this can be done retroactively to older models.



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COOKERS

VIKING Baumatic smeg Classique HomeKing

COOKERS

TRA4110

This is a traditional styled four door cooker with a gas hob. It has two 60cm ovens with fan assist (lower left and upper right), a dedicated griller (upper left) and a storage/warming drawer. The hob has seven burners, two auxiliary, two semi rapid, two rapid and one ultra-rapid triple crown and is supplied with a teppanyaki plate.

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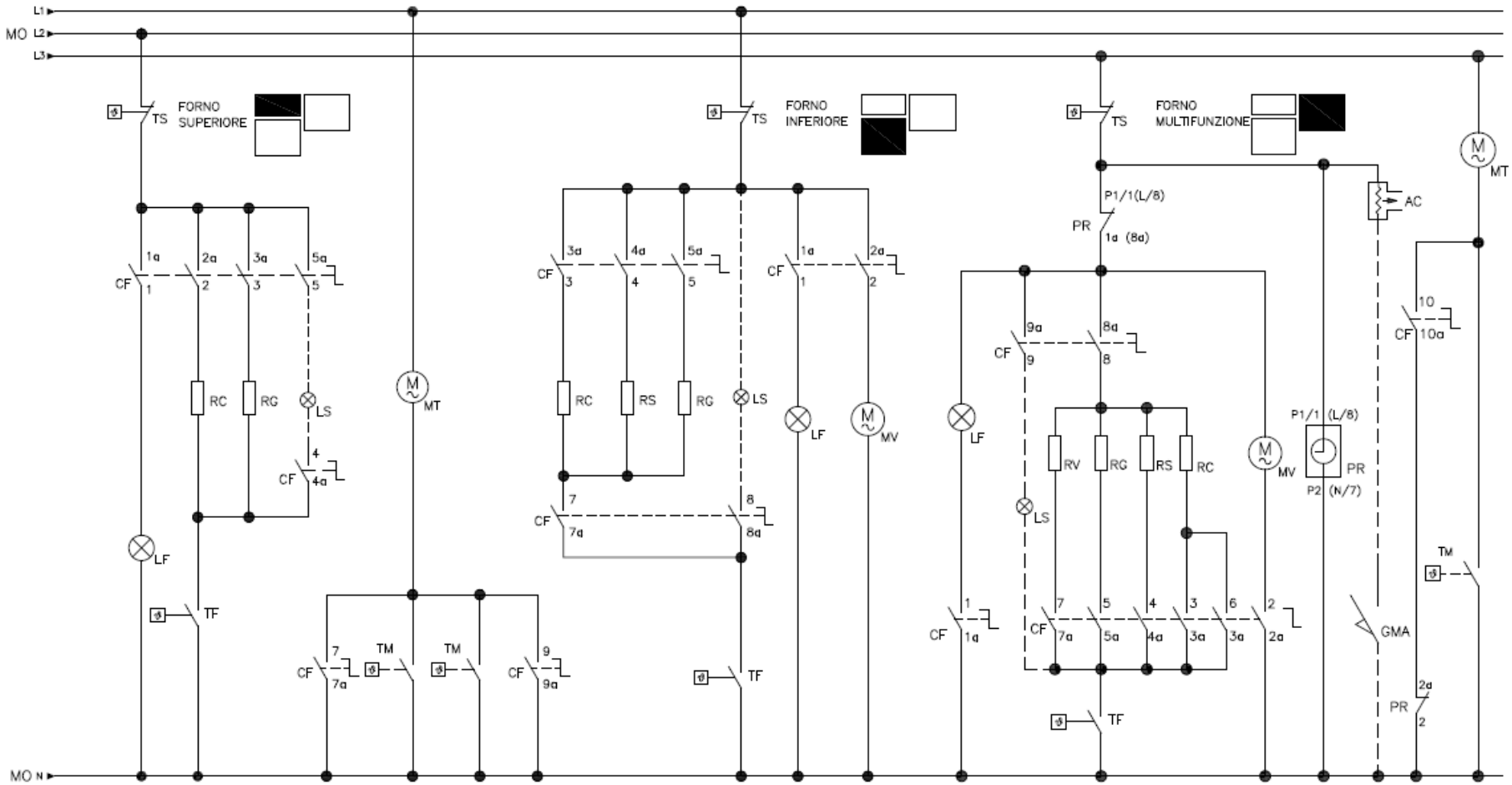
COOKERS

TRA4110

- Each oven is protected by individual safety thermostat
- Programmed cooking is only possible in the multi function oven (upper right)
- There are two cooling fans, one is operated when the standard oven (lower left) or grill oven (upper left)is used, the other operates when the multifunction oven (upper right) is used
- The grill oven has only a broil/grill element
- The standard oven has broil/grill and lower elements with fan
- The multifunction oven has broil/grill, circular and lower elements with fan

COOKERS

TRA4110



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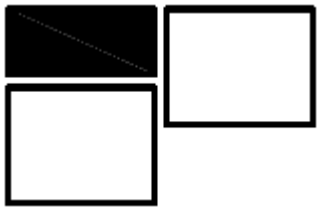
TRA4110

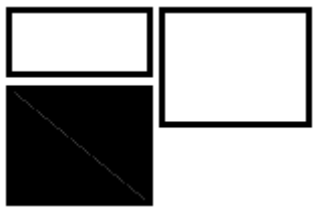
Below are the commutator diagrams for each oven indicating the function and contact state for each position.



FORNO SUPERIORE B&S

COMMUTATORE FUNZIONE
cod. 811730383

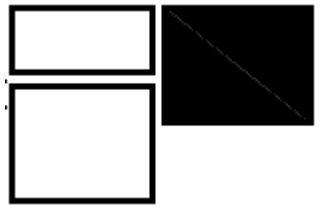
POS.	1a	2a	3a	4a	5a	6a	7a	8a	
0									
1	X				X	X	X	X	POS 30°
2	X	X	X	X	X	X	X	X	POS 60°-270°
	1	2	3	4	5	6	7	8	



FORNO INFERIORE B&S

COMMUTATORE FUNZIONE
COD. 811730347

POS.	1a	2a	3a	4a	5a	6a	7a	8a	9a	
0										
1	X		X	X			X	X	X	
2	X			X			X	X	X	
3	X	X	X		X		X	X	X	
4	X	X		X			X	X	X	
5	X	X	X	X			X	X	X	
6	X	X				X	X		X	
	1	2	3	4	5	6	7	8	9	



FORNO MULTIFUNZIONE B&S

COMMUTATORE FUNZIONE
COD. 811730366

POS.	1a	2a	3a	4a	5a	6a	7a	8a	9a	10a	
0											
1	X			X				X	X	X	
2	X		X	X				X	X	X	
3	X				X	X		X	X	X	
4	X	X			X	X		X	X	X	
5	X	X		X				X	X	X	
6	X	X					X	X	X	X	
	1	2	3	4	5	6	7	8	9	10	

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RANGE HOODS

RANGE HOODS

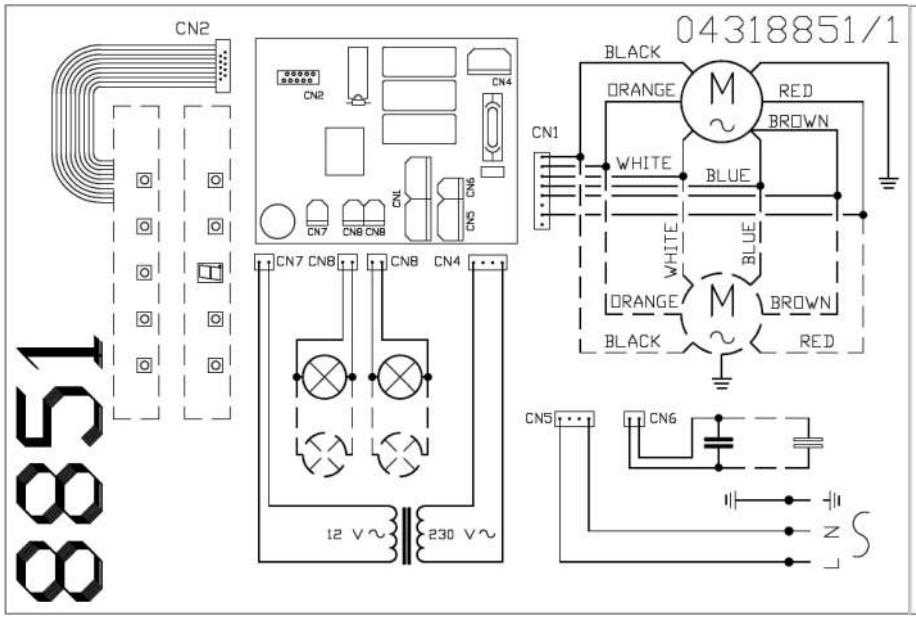
Low voltage transformer

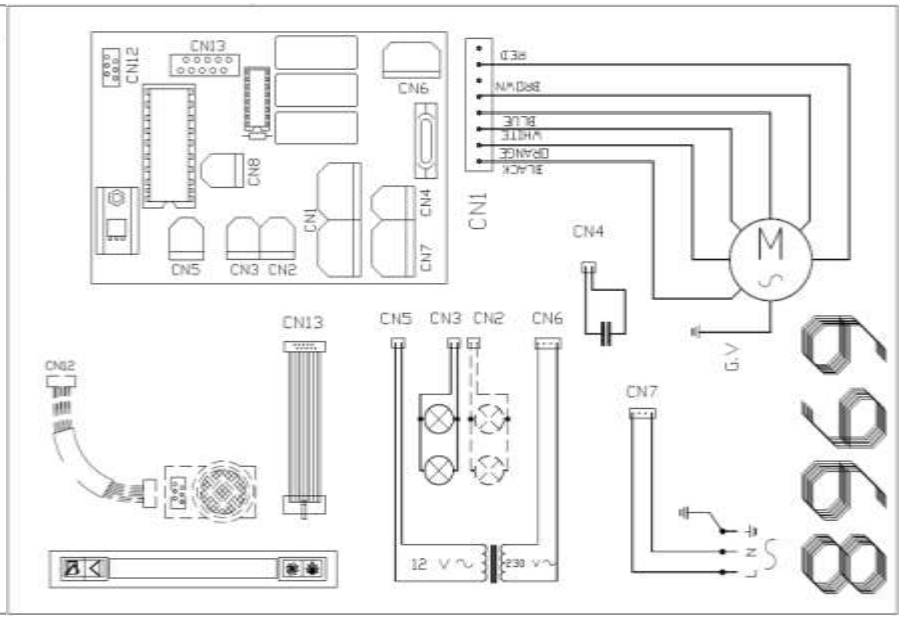
A number of canopy and power pack range hoods we source from Europe have a 12 volt supply for the lights and the control board. If the transformer fails the unit will cease to operate and a faulty control board may be diagnosed. The transformer output must be checked before replacing the control board.

Low voltage transformer

Both of the diagrams below have a 12V supply to the PCB from an external transformer.

The diagram on the left is for the CK2000 Power Pack and the one on the right is for the KASC7088LCD90 Canopy hood





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GENERAL PRACTICES

Connectors

General practices

Crimp Connectors

The break down of a conductor connection can be summarised into three categories.

- Disconnection of the connector to the receptacle
- Disconnection between the conductor and the connection
- Burning of connector-conductor-terminal due to electric overheating (Joule effect).

While the first two categories are fairly self explanatory, the third category has more complex origins. We will take a short look at the performance of a connection system (wiring/connectors) during passage of an electric current.

General practices

Crimp Connectors

As we know when a current is passed through a resistance there is a heating of the resistance, referred to as **Joule effect.** The amount of energy **W** (expressed in *Joule*) dissipated as heat, in the time **t** (expressed in *seconds*) depends on the square of the current **I** and is defined by the relationship:

$$P = R \times I^2$$

Where **I** is the current expressed in amperes (**A**), **R** is the resistance expressed in Ohms (**Ω**) and **P** is the dissipated power expressed in Watts (**W**).

General practices

Crimp Connectors

The passage of current through a conductor always creates an energy transformation, with the following four effects:

- Thermal, Chemical, Physiological (physical) and Magnetic

These effects are manifested in different ways according to whether the current is continuous or alternate. The thermal effect is known as Joule effect and is manifested with a heating which may reach incandescence of a conductor.

In electric components, if current exceeds foreseen limit or if the resistance is too high, the Joule effect creates overheating, deterioration of insulating material and in extreme cases, burning of connector and relative conductor.

General practices

Crimp Connectors

The correct repair of wiring, with relative replacement of connectors, is of fundamental importance to obtain entire reliability of machine repaired.

Seamer for non-insulated faston connection and relative connectors

The results of poor connector termination

Seamer for flag-type faston connection

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General practices

Crimp Connectors

REMEMBER TO…

Cut the conductor back until you have undamaged wire.

Use the correct connections for the conductor(s) and terminal.

Utilise the correct tools for the job.

Check the connection before fitting to the terminal, and again after fitting.

APPLICO LTD

INTERNET

Website Use and On Line Warranty

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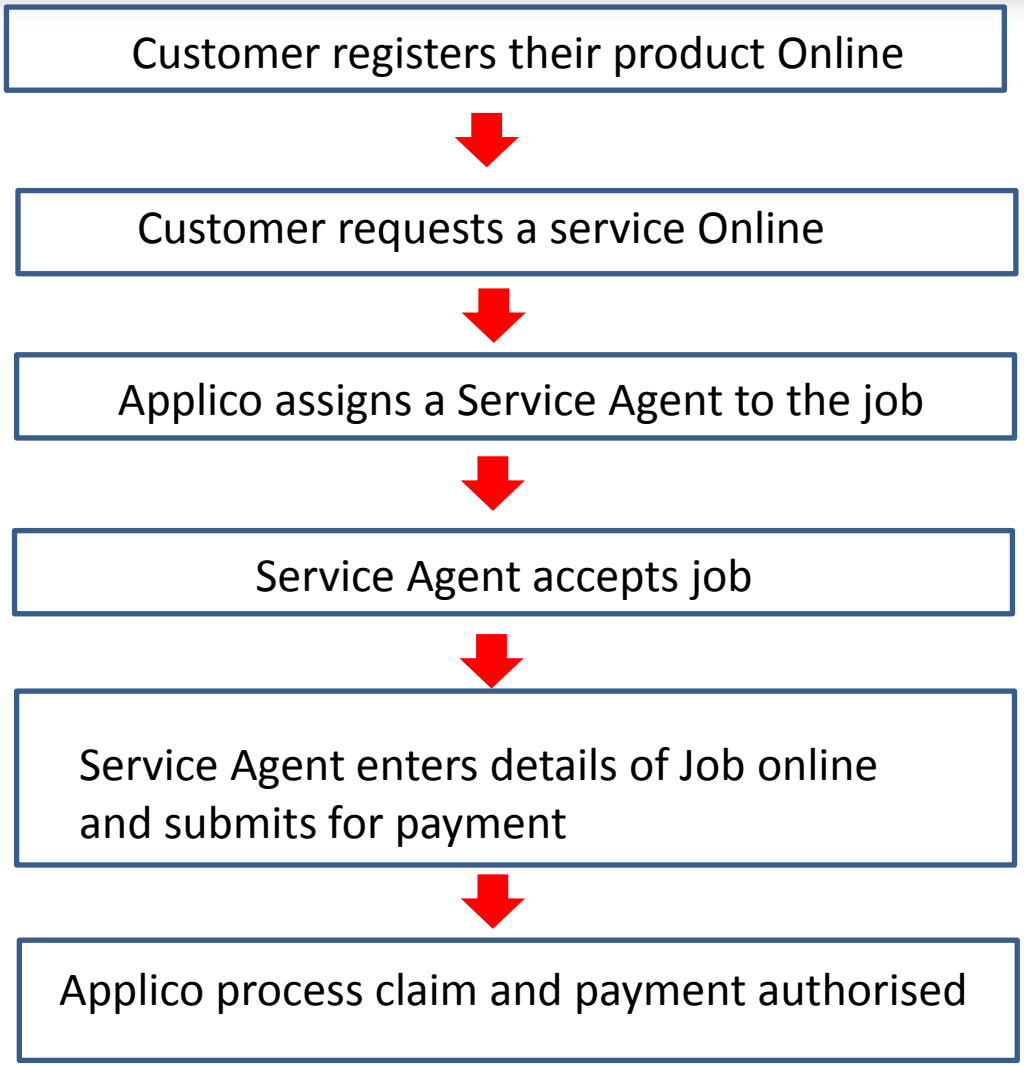
INTERNET

ONLINE WARRANTY

Applico has invested in an online warranty system to speed up processing and payment of warranty claims.
It will up to the Service Agent to enter the claim details online and submit the claim for payment
This system will be rolled out gradually during the year
This will also enable the new Applico service site

Process


Customer registers their product Online
Customer requests a service Online
Applico assigns a Service Agent to the job
Service Agent accepts job
Service Agent enters details of Job online and submits for payment
Applico process claim and payment authorised

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THANK YOU FOR YOUR ATTENDANCE

Presented by:

Richard Saberon

&

Wayne Edmonds

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